

Oregon Healthcare Workforce Committee
AGENDA – January 7th, 2015, 9:30 am – 12:30 pm
Wilsonville Training Center, Wilsonville, OR 97070
29353 SW Town Center Loop, E, Room 111/112

Meeting Objectives: Review and discuss charter deliverables to OHPB, updates

#	Time	Agenda Item	Presenter(s)	Action Item
1	9:30 – 9:40 (10')	Welcome and Introductions	Ann Buchele	
2	9:40 – 9:45 (5')	Approval: October 8 th meeting summary	Ann Buchele	x
3	9:45 – 10:00 (15')	Survey Results <ul style="list-style-type: none"> Jo and Cathryn surveyed and interviewed members on trends and possible committee work in 2015. 	Jo Isgrigg, Cathryn Cushing	
4	10:00 – 10:20 (20')	Coordinated Care Model Conference <ul style="list-style-type: none"> An opportunity to share learning from the conference and discuss possible workforce implications. 	Jo Isgrigg, Conference Attendees	
5	10:20 – 10:30 (10')	Committee Work Updates <ul style="list-style-type: none"> Primary Care GME Consortium Progress Administrative Standards for Clinical Placements – implementation and standardized tracking system updates Other? 	Ann Buchele, Cathryn Cushing	
	10:30 – 10:45 (15')	Break		
6	10:45 – 11:25 (40')	Healthcare Administration and Management <ul style="list-style-type: none"> Health managers and administrators are a key part of the healthcare workforce. This presentation will illustrate who these professionals are and how they are being trained. 	James Huntzicker, Division of Management, OHSU School of Medicine	
7	11:30 – 12:10 (40')	Oregon Talent Council <ul style="list-style-type: none"> The OTC intends to guide strategic investments in workforce development for Oregon's traded sector and high growth industries, including health care to: <ul style="list-style-type: none"> Identify urgent education and training needs of industry. Address hard to fill occupations. Accelerate the supply of high growth occupations and skills. Accelerate innovation and foster new ways to deliver proficiency- 	Laura McKinney, Assistant Vice Chancellor for Strategic Industry Partnerships	

#	Time	Agenda Item	Presenter(s)	Action Item
		<p>based education tied to industry needs.</p> <ul style="list-style-type: none"> ○ Enhance student work experience and job preparedness. 		
8	12:10 – 12:20 (10')	<p>General and OHA Updates</p> <ul style="list-style-type: none"> ● Legislative Session Preview ● NHSC Provider Applications ● Other? 		
9	12:20 – 12:30 (10')	Public Comment	All	
	12:30	Adjourn: Next meeting March 4 th 2015, 9:30 – 12:30		

Meeting Materials

1. Agenda
2. October 8th meeting summary
3. Survey results summary document
4. Management Education for Healthcare Professionals Presentation
5. Industry University Partnership: HCWF Development Presentation
6. OUS HCWF Initiative Milestone Report (2)
7. OUS HCWF Initiative Milestone Report (3)

Oregon Healthcare Workforce Committee
October 8th, 2014 from 9:30-12:30
At Wilsonville Training Center
Draft - Meeting Summary

Committee Members in Attendance:	Ann Buchele Jeff Clark Lita Colligan Pat Brunett Jeff Papke Carla McKelvey-OHPB	David Nardone John Osbourn David Pollack Daniel Saucy Robyn Dreibelbis Michael Delgado (ph)
Committee Members Not in Attendance	Agnes Balassa Theresa Mazzaro Sharmilla Bose	Jordana Barclay Andrew Janssen Josie Henderson
OHA and OHWI Staff	Lisa Angus, OHA Cathryn Cushing, OHA Marc Overbeck, OHA Margie Fernando, OHA	Jo Isgrigg, OHWI Jana Bitton, OCN
Others	Robert Duehmig, Office of Rural Health Scott Fields, MD, OCHIN/OHSU Erika Cottrell, PHD, OCHIN	

1	Welcome
2	Approval: August 6th, 2014 meeting summary
	Meeting Summary was approved with an amendment from David Pollack about the role of Psychiatric Nurse Practitioners and their functioning as supports or consultants for clinic-based psychologists.
	<i>Action Steps:</i> <ul style="list-style-type: none"> • <i>Staff will finalize the summary</i> •
3	Workgroup D-Emerging Trends Report

Objective: To finalize the ET report and recommendations.

Background: The OHPB asked for the following deliverable to be submitted on September 1, 2014: *An analysis of health care industry trends in emerging employment categories and new workforce roles, accompanied by an audit of Oregon's training capacity for those jobs and roles.*

The Emerging Trends Workgroup has completed an extensive literature review and conducted key informant interviews in the development of the current draft.

Discussion: Discussion of the report was focused on several main issues:

- 1) Inclusion of alternative medicine practitioners. Jeff Clark requested more time with the report in order to craft a recommendation that focused on alternative medicine practitioners, who are experiencing many barriers to practice within CCOs and to reimbursement from insurance companies. Other members responded that the recommendations were meant to be generic and not specific to one particular profession. Also, time with the report is limited to this meeting since we have already requested an extension of the due date. Some thought this issue would be better addressed within the body of the report, rather than as a recommendation. Others remembered that the Integrative Medicine Advisory Group was developed to respond to these concerns. In addition, legislation had been proposed that would have included naturopaths in the definition of primary care practitioners.
- 2) Appendix tables: The tables still seem too long and unreadable to many members. They need to be more user-friendly, otherwise they won't be read. One suggestion was to have a summary table in front of the long inventory (Appendix D) that would call out each profession and the totals of reported graduates. One specific issue was that in the list of THW Training Programs, the first training program refers to a Peer Wellness program that may belong in the Peer Support training section.
- 3) Demand data: The tables would be more meaningful to members if they included data on demand for health professionals as well as supply. The report is also missing information on professionals coming into the state after being trained elsewhere. Unfortunately, the data sources are inadequate for solid analysis of demand. Carla McKelvey suggested a recommendation focused on developing a model for collection of the demand data. One thought was that professionals coming into the state could be used as a proxy for demand. Pat Brunett reminded the group that health care defies the supply/demand equation since sometimes having supply creates the demand for services. He suggested a gap analysis by figuring out the state's health care goals, then working backward to what is needed to meet the goals and desired outcomes.

Robyn Dreibelbis suggested looking at whether or not schools are tracking where their graduates go. Lita Colligan said that OIT is doing some tracking through social

	<p>security numbers because to receive Title IV benefits, schools have to show gainful employment rates after graduation. Members wondered if the Committee could gain access to those tracking systems. The Oregon Bureau of Labor Statistics projects demand of certain professions, however, cannot take into account self-employed individuals or consultants who are heavily represented in the health professions. Members asked how CCOs are projecting demand. Jana Bitton told the group that the Oregon Center for Nursing periodically asks employers about need and will be launching another survey in the near future. The recent projections report also analyzed potential need for doctors, nurse practitioners and physician assistants, however, projections are always either based on past numbers, or are estimates only.</p>
	<p><i>Action Steps:</i></p> <ul style="list-style-type: none"> • <i>Include discussion of the barriers for integrative medicine practitioners in the body of the report – Cathryn Cushing</i> • <i>Summarize the inventory table – Jo Isgrigg</i> • <i>Develop a new recommendation about creating a model for tracking demand as well as supply and send out to Committee for comment – Cathryn Cushing</i>
4	Other Workgroup Updates
	<p><u>Objective:</u> Keep HCWF Committee apprised of work in other workgroups and progress toward charter deliverables.</p> <p><u>Discussion:</u></p> <p>1) Centralized tracking system: A stakeholder meeting was held on August 7th with representatives from several of the community colleges, two people from St. Charles and one person representing a business solution. Many schools are already using a system for tracking and no one at the meeting was ready to take on the task of leading this work. The group decided to postpone further meetings until after the first of the year.</p> <p>At the meeting, it was clear that hospitals and health systems were having trouble working with the array of different systems. OHA tried reaching out to the Oregon Association of Hospitals and Health Systems to see if that body would be interested in convening their members to work toward a better solution. OAHHS agreed to ask their members about their interest and will get that information back to OHA as soon as possible.</p> <p>2) GME Primary Care Consortium: The OEHB/ModaHealth Grant Program made a firm commitment to \$506,000 over three years to fund startup costs for a GME</p>

	<p>Consortium. The first planning group meeting is scheduled for October 17th. The first payment of \$143,000 to fiscal agent, AHEC SW, is due October 15th.</p> <p>Members wondered how the Consortium would relate to OHSU's rural track expansion. Pat Brunett, head of OHSU's GME program and also one of the co-chairs of the planning group, believes the Consortium's residency program(s) would support those rural track students in the future. Pat also mentioned to members that the Institute of Medicine recently released a report on GME in the United States, calling for a restructuring of the GME system to address the geographic inequities of the system and the lack of transparency in funding. An Oregon Consortium would be well positioned to take advantage of any policy changes resulting from the report.</p>
	<p><i>Action Steps:</i></p> <ul style="list-style-type: none"> • <i>Send members a link to the IOM report – Cathryn Cushing</i>
6	General and OHA Updates
	<p><u>Discussion:</u></p> <p><u>OHA:</u></p> <ul style="list-style-type: none"> • OHA presented a report to the Health Policy Board on October 7th that showed Oregon's uninsured rate is down to 5.1 percent. This is a fantastic outcome of Oregon's health reform efforts and the expansion of Medicaid benefits. • The Transformation Center of OHA is sponsoring a Coordinated Care Summit on Dec. 3rd and 4th. Lisa Angus encouraged all members to register and attend, if possible. Members agreed to cancel the December HCWF Committee meeting in favor of attending the Summit. It was suggested that members take a short survey after the Summit asking what they learned that pertains to workforce issues. • The J-1 Visa Waiver (Conrad 30) Program just completed another program year; Oregon made 29 recommendations for waiver of the available 30 slots. This represents the third year out of four that Oregon used more than 25 of its 30 slots. • The National Health Services Corps (NHSC) is in the middle of a recertification cycle; about 15 NHSC sites (or 1/3 of the sites that need to recertify every three years) in Oregon are engaged in renewing their NHSC status currently. The deadline for application is November 3.. • The Medicaid Primary Care Provider Loan Repayment Program is currently accepting applications for the new round of awards. To date, since January 17 providers have received and accepted awards from this program. Marc noted the Committee's early engagement in the design of the program. • This week is National Primary Care Week. Activities are taking place in several locations to mark this, and to acknowledge the contribution of NHSC providers in

	particular.
7	Prior Recommendations Walk-through
	<p><u>Objective:</u> Discuss former recommendations, determine if the Committee should continue to pursue activities related to those recommendations that have not yet been implemented.</p> <p><u>Background:</u> The Healthcare Workforce Committee has made a series of recommendations to the Oregon Health Policy Board based on research and evidence gathered as a result of fulfilling deliverable requests. Many have resulted in policy changes such as legislation to standardize clinical administrative requirements for health profession students. Some recommendations, however, have not resulted in policy change or other activity.</p> <p><u>Discussion:</u> This agenda item was postponed until the next HCWF Committee meeting.</p>
8	Presentation: OCHIN/OHSU and Alternative Payment Methodology Pilot Evaluation
	<p><u>Objective:</u> Provide HCWF Committee members with information about the APM Pilot being evaluated by OCHIN.</p> <p><u>Background:</u> Committee members know that in order for health reform to work effectively, methods of payment must be explored that allow for a broader provider base as well as payment for services not traditionally thought of as health care. This presentation will provide some insight on how APM can be implemented in Oregon and how that implementation is going.</p> <p><u>Discussion:</u> Dr. Scott Fields and Dr. Erika Cottrell delivered the presentations. Please see slides below for details.</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>
10	Public Comment
	<p><u>Objective:</u> Give members of the public time to share with the Committee. <i>There was no public comment at this meeting.</i></p>

Survey Results

Direction for the Healthcare Workforce Committee - 2015

The shift back to the centrality of primary care is bringing with it many workforce issues. In general, committee members want to focus on how to encourage and support primary care. Suggestions fell into general categories of practice supports, determining demand, alternative payment methodologies and diversity.

- Practice supports
 - Assist with recruitment and retention of primary care providers.
 - Are there policy changes that would encourage and strengthen community connections?
 - Should there be more investment in the pipeline?
 - Can policy changes help to mitigate the effect of the aging and retirement of providers?
 - Ensure that the right specialists are connected to rural practices.
 - What policies would encourage the development of telemedicine applications such as Project ECHO?
 - Expand definition of primary care?
- Understand demand
 - Work with Or Employment Dept., OR WIB, industry hiring managers, and other stakeholders to determine why workforce planning is so difficult and develop a research model that would collect data to make planning easier and more accurate.
- Alternative Payment Methodologies
 - Study methodologies currently in use or being piloted, offer policy recommendations on how OHPB can encourage uptake of successful models.
- Diversity
 - Continue to collect data on the diversity of the workforce and compare workforce diversity to the diversity of Oregon's population. Are there significant disparities? What policy options could address the potential disparities?

Management Education for Healthcare Professionals

James Huntzicker
Division of Management
OHSU School of Medicine

Transforming the Business of Healthcare

First, some facts

- As a country the United States spends almost \$3 trillion annually on healthcare—about 18% of GDP.
- Approximately 50% of that spending is by the federal and state governments.
- Healthcare economists estimate that 30+% of these expenditures is waste.
- The rate of medical errors—particularly medical errors resulting in death—remains shockingly high.

Waste from a provider/operations context

Type of Waste	Examples
Defects/errors	Medical errors, medication errors, incorrect billing
Over-production	Duplicate or unnecessary lab tests, multiple forms with same information
Waiting	Waiting for other workers, patients waiting for appointments and procedures
Lack of clarity/confusion	Same activities being performed in different ways by different people, unclear MD orders
Transporting	Travel to remote storage room to retrieve supplies
Inventory	Overstocked medications and supplies
Motion	Looking for information, materials, people
Other	Clarifying orders, redundant information gathering

Waste from a system perspective

- Failures of care delivery
- Failures of care coordination
- Overtreatment
- Administrative complexity
- Pricing failures
- Fraud and abuse

(per Berwick & Hackbarth)

Quality in Healthcare

- Safe
- Effective
- Efficient
- Patient-Centered
- Timely
- Equitable

Institute of Medicine, 2000

What can we do about this?

- Poor management lies at the root of many of these issues.
- Healthcare needs good management!
- Education in healthcare management can make a difference.

Healthcare Management Education in Oregon

- OHSU
 - OHSU-PSU MBA in Healthcare Management aka *The Healthcare MBA*
 - M.S. in Healthcare Management
 - Graduate Certificate in Healthcare Management
- Master of Public Health Programs/Health Management & Policy
 - Portland State University
 - Oregon State University
- Master of Public Administration/Health Administration-Portland State University
- Other programs at Pacific University, Marylhurst University, Concordia University

The Healthcare MBA

- Joint degree from Oregon Health & Science University and Portland State University
- 72-credit program designed for working professionals who seek to become highly effective leaders and managers in the healthcare sector.
- Provides in-depth knowledge of the healthcare industry integrated into a challenging MBA framework.
- Accredited by AACSB (Association to Advance Collegiate Schools of Business)

The Students

- Experienced working professionals from:
 - Healthcare organizations
 - Companies selling into healthcare
 - Health insurance companies
 - Government agencies
 - Other organizations related to healthcare
- Clinicians of all sorts, administrators, and others with management responsibilities
- Career changers



Through this program students will acquire:

- Systematic understanding of the American healthcare industry.
- Business knowledge, skills, and tools to be effective leaders and managers.
- Interpersonal and organizational skills to lead profound change.



Faculty

- **OHSU** (Division of Management, Departments of Medical Informatics & Clinical Epidemiology, Psychiatry, Obstetrics and Gynecology)
- **PSU School of Business Administration**
- **Community practitioner faculty** (OHSU, Salem Health, Health Republic CO-OP, ATRIO, Kaiser Permanente, Providence Health & Services, etc.)

Designed for Working Professionals

- Blend of face-to-face and online education
- Two face-to-face weekend sessions per academic quarter
- Taught in the context of the students' work experiences and professional environments

Course Content

- Cases, examples, and guest speakers primarily from healthcare.
- Incorporates best practices from other industries.
- Anchored in the students' work environments
- Fully integrates healthcare into MBA courses



Curriculum—Five Thematic Categories

- Understanding the Healthcare Industry
- Leadership and Management in Healthcare
- Operations and Quality Management in Healthcare
- Finance, Marketing, and Strategy in Healthcare
- Application Projects and Capstone

Understanding the Healthcare Industry

- Organization, Financing, and History of Healthcare Delivery in the United States
- Legislation and Regulation of Healthcare Delivery
- Healthcare Economics
- Pioneering Innovation in Healthcare
- Payment Systems in Healthcare

Leadership & Management in Healthcare

- Leadership Development & Assessment
- Leadership Immersion
- Organizational Management in Healthcare
- Ethics in Healthcare Organizations
- Executive Briefings—Managing in the Real World of Healthcare

Operations and Quality in Healthcare

- Managerial Decision Making
- Healthcare Program Management
- Managing Operations and the Value Chain in Healthcare
- Managing Quality in Healthcare
- Information Technology in Healthcare



Finance, Marketing and Strategy in Healthcare

- Financial Reporting
- Managerial Accounting and Control
- Financial Management
- Strategy in Healthcare Organizations
- Marketing Research & Strategy in Healthcare

Application Projects and Capstone

- Application Projects
 - Anchoring the learning in students' particular work settings
 - One-credit courses during the summers of the first and second years
- Capstone
 - Integrates the learning from the whole program
 - *Pro bono, team-based* consulting project
 - 2014 examples
 - Innovation incubator, Providence Health & Services
 - Business plan for medical home, Legacy Health Systems
 - Strategy for ambulatory center, PeaceHealth
 - Business case for brain injury and concussion service line, Kaiser Permanente

Further Information

- www.ohsu.edu/Management
- www.TheHealthcareMBA.org
- Jim Huntzicker, Head, OHSU Division of Management
 - huntzicj@ohsu.edu
 - 503-346-0365

Transforming the Business of Healthcare

Industry-University Partnership: Healthcare Workforce Development

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JANUARY 7, 2015

PRESENTATION TO THE OREGON HEALTH CARE WORKFORCE
COMMITTEE

LAURA MCKINNEY

ASST. VICE CHANCELLOR, INDUSTRY PARTNERSHIPS OUS
EXECUTIVE DIRECTOR,
ENGINEERING & TECHNOLOGY INDUSTRY COUNCIL

January 2, 2015

Outline...

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- **How did we get here?** Shared background on the state of collaboration between industry and universities for the healthcare workforce in Oregon.
- **Where are we?** Current status and opportunities regarding a new initiative in response.
- **What's next?** Guidance about what this initiative might be doing to effectively inform, coordinate or integrate with the HCWC

2013: Industry reaches out...

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In response to a long-standing **industry request** to better coordinate and collaborate with the OUS **on healthcare workforce issues**, a joint industry-university taskforce was developed with these goals:

- **Understand the current state of collaboration.** What is working and what is not?
- **Identify a way forward** that strategically improves how we coordinate and collaborate on shared healthcare workforce goals.

2014: Taskforce conclusions

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Milestone 2 Report:

Characterizes the state of the collaboration:

- Identifies and evaluates nine different workforce-focused touch points between industry and the universities.
- Describes industry and university gaps in relationships, needs and information.
- Focuses on four “hotspots” for action.

Milestone 3 Report:

Outlines a plan for strategic partnership moving forward:

- Purpose, success criteria, membership, and funding.
- Action plan for implementation.

Key functions for the strategic partnership

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- **Jointly promote timely responses** to health care workforce and education needs;
- **Address investments** in health profession education; and
- **Advance policy solutions** and appropriations requests to the appropriate state entities and the state legislature.

In addition, the taskforce identified specific roles for the partnership including such as: *enhancing educational capacity through collaborative engagement; promoting expansion of diversity in the healthcare workforce; interprofessional education; retraining for transforming system; addressing educational pipeline issues; and others.*

We are here: key steps from the action plan

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- Identify and **obtain start-up funding.**
- Develop and **implement the strategic partnership infrastructure** (e.g., backbone organization for a collective impact model, staffing).
- Identify and **obtain commitments from strategic partner participants.**
- Conduct facilitated meetings to **formalize the mission, shared goals, governance, and common agenda** to inform the strategic partnerships' subsequent efforts to develop a strategic work plan to address funding, investments, and initiatives.

Why reinvent the wheel?

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**IS THERE AN EXISTING STRATEGIC
PARTNERSHIP APPROACH?**

Two informative models...

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- **One in health care:** HealthForce Minnesota (<http://www.healthforceminnesota.org/>)

HealthForce Minnesota is a collaborative partnership of education, industry and community that was created to increase the number and expand the diversity of healthcare workers; to integrate health science education practice and research; and to build capacity for education and industry to collaborate to enhance patient care.

- **One in Oregon:** Engineering and Technology Industry Council (ETIC) (<http://eticnow.org>)

A place where centralized industry input could influence the quantity and quality of post-secondary based education (at multiple institutions) to meet growing engineering demands for the high tech sector.

ETIC history

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- **SB 504/1997** <http://www.leg.state.or.us/97reg/asures/sb0500.dir/sb0504.en.html>
- **Unique partnership** where the state entrusts investment guidance in post-secondary engineering education with industry leadership.
- **Continuously funded**; peaked in mid-2000s and fairly static since then. Currently at \$29M per biennium. Must be renewed each biennium.
- **State fiduciary**: Decision authority resided in the State Board of Higher Education until July 2014. Now resides with the Oregon Education Investment Board.

Mission Focus

- Meeting urgent industry needs
- Upgrading existing talent
- Providing opportunity for new talent

Investment Quality

- Providing greatest benefits
- Avoiding duplication of existing resources
- Sharing resources across institutions
- Minimizing cost to the public

Results

- Measuring performance
- Leveraging private investment

Imperatives for ETIC success in next decade

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- **Broaden investment target** to all post-secondary education.
- **Extend industry** to include healthcare, energy, manufacturing and other emerging areas of need. “Reusable” infrastructure.
- **Broaden ETIC** from single agency, single objective thinking. “State can no longer afford single objective investing.” Unite efforts with economic development.
- **Build industry’s value as trusted advisors**, independent of programmatic aspects. One stop for maximum influence and scope.

Oregon Talent Council

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**AN OVERVIEW OF THE COUNCIL
CONCEPT, THE LEGISLATIVE CONCEPT,
AND KEY STRATEGIES**

January 2, 2015

Statewide industry council

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Focused on the development of CORE talent that:

- 1. Mitigates business/operational risk:** Hard to fill/find jobs that are imperative to an industry's operation (e.g. power engineers)
- 2. Supports demonstrated growth** in skills and jobs (e.g. data analysts)
- 3. Identifies talent that is a competitive advantage** for growing Oregon's industry (e.g. cyber security)

Industry's definition of talent

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Industry's pain points:

Unmet demand and bubbles for key talent

Rapidly changing skills for existing workers

Industry's view of pain relief

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- **Shared goals:** A centralized voice for industry that can reach the multiple organizations addressing the supply of talent
 - Coordinated data and industry information to reduce duplication of effort and promote collaborative solutions
- **Responsive solutions:** Supporting proficiency-based education and training
 - Piloting innovative ways of delivering education
- **Sustained competitiveness:** Developing an easily accessible life long learning system that keeps existing workers up to date with current skills
 - Just in time learning and training for incumbent workers

OTC Legislative Concept

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January 2, 2015

OTC objectives

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- Identify urgent education and training needs of industry.
- Foster new ways to deliver proficiency-based education tied to industry needs.
- Develop professional, industry-led badges and certifications to support on-going skill development in Oregon's existing workforce.
- Enhance student work experience and job preparedness.

OTC membership & governance

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- Majority of council will be industry executives from key sectors.
- Ex-officio members from agencies and boards playing key role in implementing solutions: HECC, OED, OWIB, OBDD, OEIB/STEM Investment Council.
- Sector subcommittees will identify needs and make recommendations for investments; there will be a cross-sector committee for shared needs.

Investment criteria

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- Demonstrated and measurable industry need.
- Ability to leverage other private and public funds.
- Projects of limited duration (not intended for sustained funding).

OTC strategies

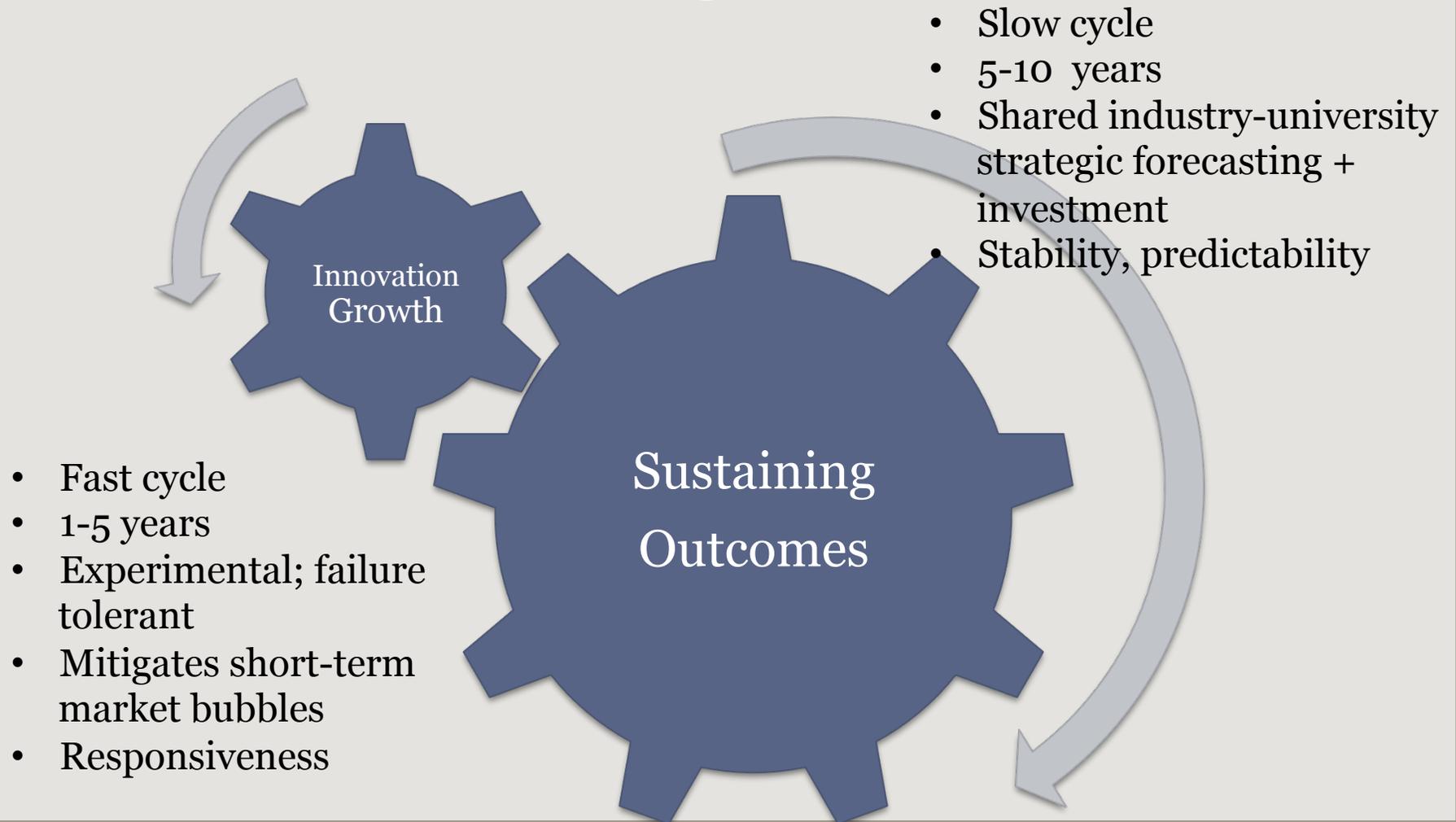
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**FUNDING SYSTEM
FOCUS ON KEY INDUSTRIES AND JOBS
UNIFIED INDUSTRY VOICE, SHARING ACROSS SECTORS**

January 2, 2015

Strategy 1: Effective funding system for talent education

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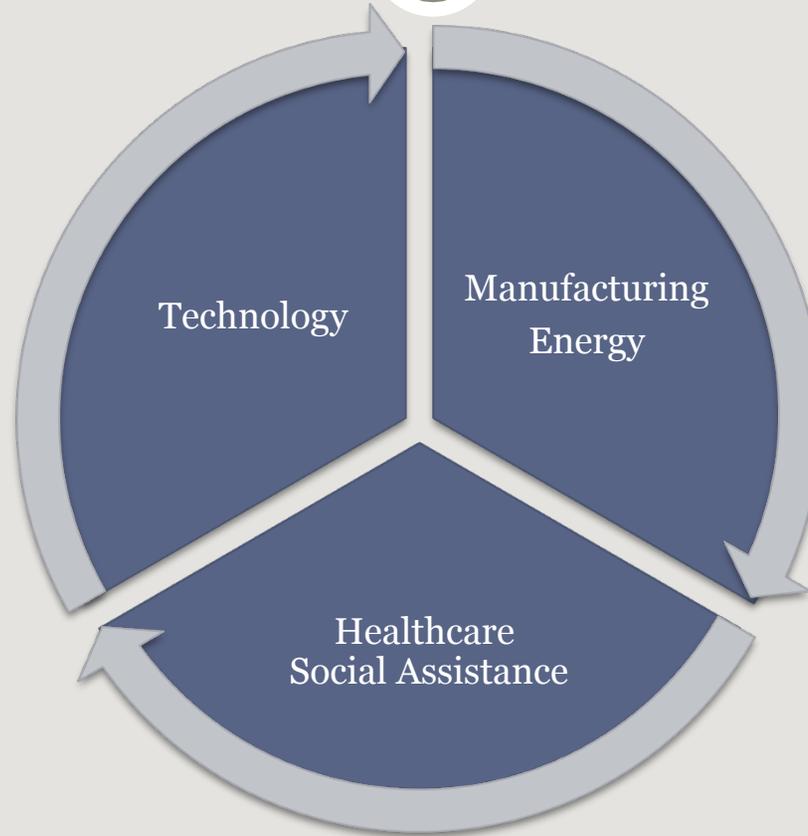
January 2, 2015

Strategy 2: Focused on key industries...

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Prohibitively costly for small and mid-size business to recruit from out of state.

Almost universal demand for technology, introducing inter-sector workforce competition.



*Aggressive workforce education and development in other states can and is **drawing industry away** from Oregon.*

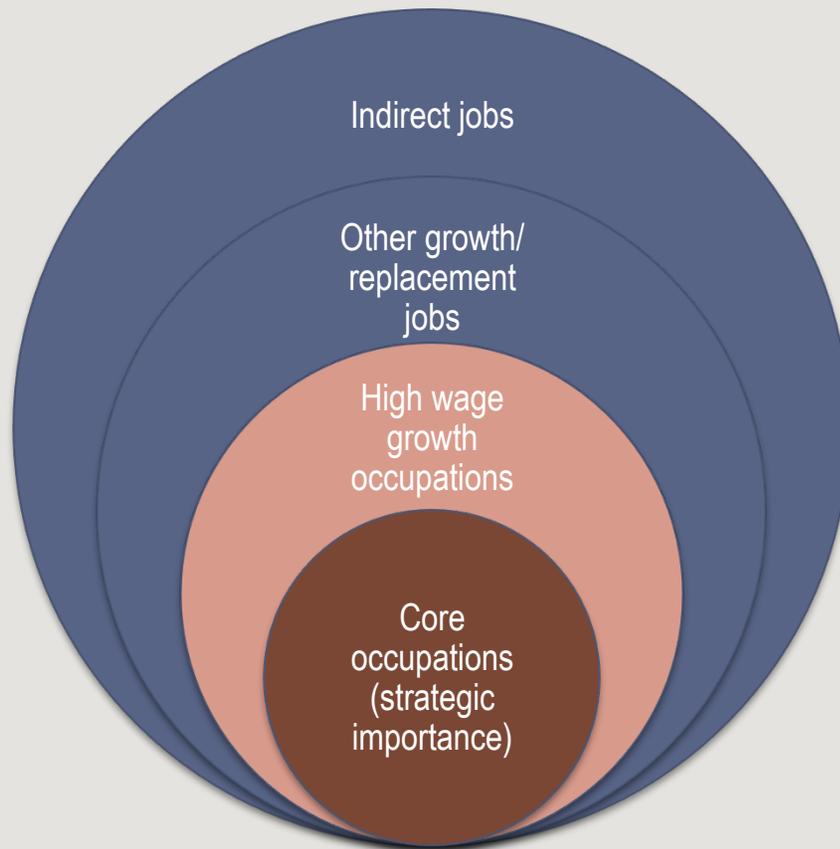
***Aging workforce and changing landscape** introducing talent risk for critical infrastructure. No good pipeline for power!*

*Oregon **relies on importing talent** from out of state: now at the mercy of other state's policies.*

...and key jobs

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Job/occupations within industry clusters



Our workforce and education system serves the broad array of jobs supporting Oregon's traded sectors and key industries (and which employ the majority of the workforce)

OTC is focused on the jobs that are critical for industry competitiveness, connecting talent to regional and economic development.

*Primarily professional/technical
2-4+ years of higher education*

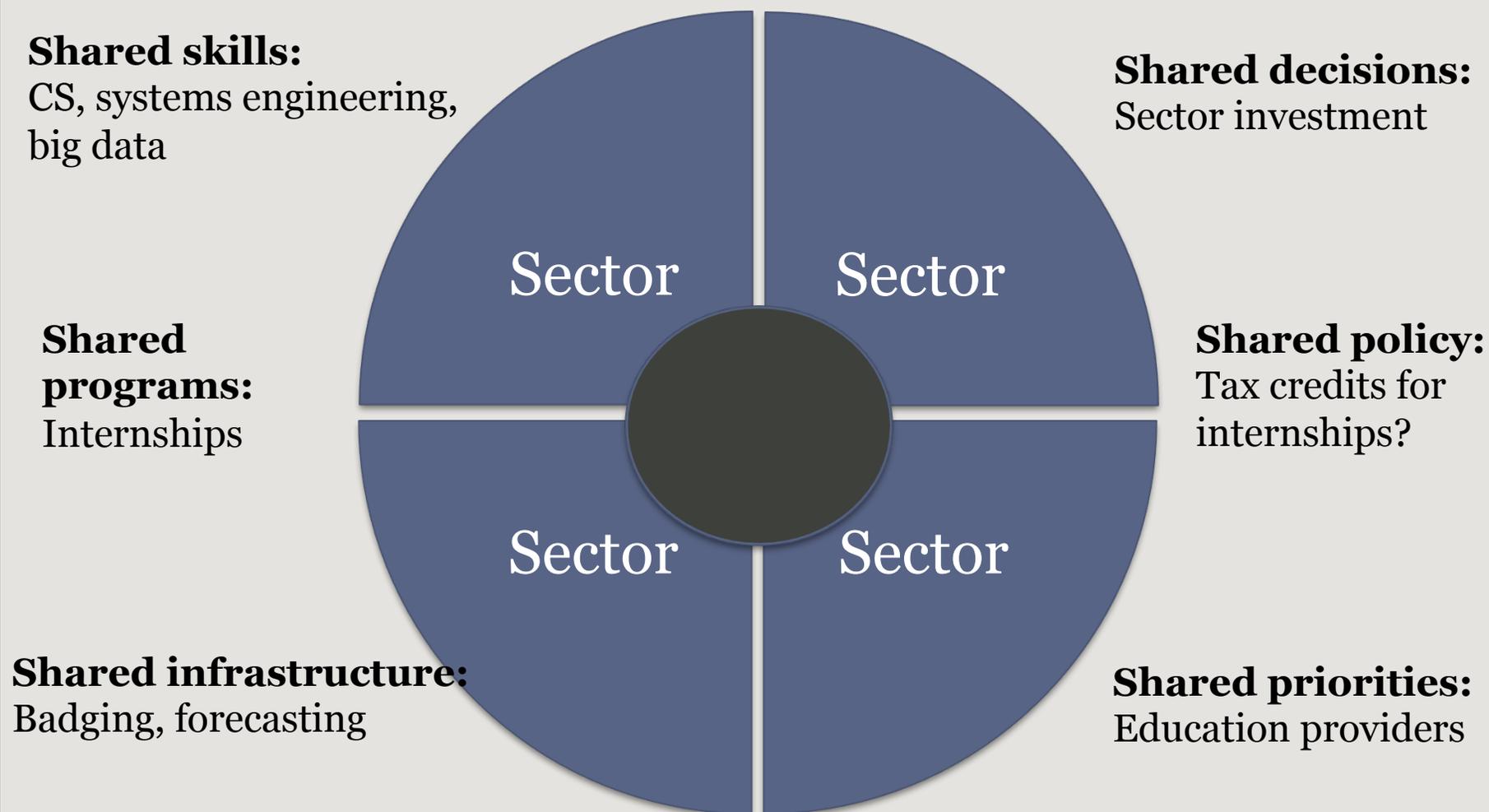
Strategy 3: Focused industry voice...

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- **Demand driven. Accountable.**
 - Work from clear statements of industry need.
 - Clear outcomes.
- **Collaborative. Strategic. Game-changing.**
 - One voice from industry; one voice from post-secondary education.
 - Direct and deep connections. Trusted industry advisors.
 - Intentional and strategic action.
- **Cross silo. Industry voice.**
 - Workforce, education, economic development.
 - Research, workforce, technology transfer.
- **Shared funding: public-private partnerships. Based on funding system.**
 - Representative of mutual commitment to the shared challenges.
 - Industry guides investments; post-secondary education provides proposals.
 - Invest in the best performers (public and private).

...Sharing across sectors

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January 2, 2015

Questions?

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- **Shared background** on the state of collaboration between industry and universities for the healthcare workforce in Oregon.
- **Current status and opportunities** regarding a new initiative in response to the work of the taskforce.
- **Guidance** about what this group might be doing to effectively inform, coordinate or integrate with the HCWC.



Oregon University System's Health Care Workforce Initiative: Milestone Two Report



Assessing the readiness for engagement between Oregon's public universities and the health care industry to respond to health care workforce needs for a transforming health care system.

Acknowledgements

The Oregon Healthcare Workforce Institute gratefully acknowledges the support and guidance of the Oregon University System's Chancellor's Office, the members of the Provosts' Council and the six universities engaged in the Health Care Workforce Initiative: Oregon Health & Science University, Oregon Institute of Technology, Oregon State University, Portland State University, Southern Oregon University, and University of Oregon.

We would like to thank the University-Industry Team members, university representatives, and industry employers for their time, insight, and advice to inform the Oregon University System's Health Care Workforce Initiative.

University-Industry Team Members

Laurie Barr	Leann Maupin
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Lisa Dodson, MD	Sheila Murty-Job
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Sherril Gelmon, DrPH	Becky Pape
Nancy Goldschmidt, PhD	Jane Renken
Marie Harvey, DrPH	David Robinson, PhD
Denise Honzel	Jeanne Stallman
Mary Rita Hurley, RN, MPA	Tze-Yiu Yong
Terri Johanson, EdD	

Executive Summary

Milestone Two of the Oregon University System's Health Care Workforce Initiative provides an inventory of the current state of collaboration between Oregon's public universities and the health care industry, identifying reported gaps in relationships, knowledge, and educational offerings.

Data and information gathered from 33 university and health care industry representatives and additional sources identified nine distinct types of relationships between the universities and the health care industry regarding workforce development. These nine categories are formed around: industry-based student training sites, informal individual networks, industry members as adjunct faculty, industry advisory committees, industry-sponsored educational events, industry-funded scholarships, industry-requested training, research partnerships, and dual education and industry roles (OHSU).

Gaps in relationships identified by university representatives focused on ways to engage industry to improve the universities' response to workforce needs, including educational costs, clinical training sites, curricula, program development, student diversity, faculty development and acquisition, and academic culture changes. Gaps in relationships identified by industry members were research-focused and reflected a desire to tap into university expertise to help navigate through health system changes.

Gaps in needs and information identified by university representatives focused on quantitative measures, including accurate data to address workforce demand. Industry representatives focused on qualitative workforce attributes needed for a transforming health care system, including interpersonal, technical, managerial, financial, and leadership skills and competencies. Industry representatives also identified the need for more professionals who hold strategic roles in health system transformation, including primary care providers, data analysts, and process improvement and systems engineers.

Four "hot spots" were identified for further university and industry action:

1. Preparing a workforce with the competencies needed for health care transformation and new care delivery systems.
2. Identifying and understanding new and emerging health care workforce roles and needs.
3. Matching graduate supply with industry's workforce demand, focusing on providers needed to support health care transformation, building a diverse workforce, and filling positions vacated by Oregon's the aging health care workforce
4. Jointly approaching the Higher Education Coordinating Commission for additional investments in health profession and related education programs and approval of new health profession programs.

Health care transformation and a dynamic health care environment make a compelling argument for an ongoing strategic engagement for the universities and the health care industry to inform the universities' strategic plans, respond to workforce and education needs, and advance policy solutions and to the Higher Education Coordinating Commission and state legislature.

As a neutral convener and statutorily-designated advisor to public agencies, the Oregon Healthcare Workforce Institute can serve as staff and organizer of this approach. Additionally, OHWI can work with individual universities to inform strategic planning efforts in order to produce competitive graduates and respond to the workforce needs of the health care industry.

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Oregon University System's Health Care Workforce Initiative: Milestone Two Report

State and federal health care reform, a growing, aging and diversifying population, an aging workforce, and advances in medical knowledge and technology have an immense effect on the health care industry. To understand the workforce impact of these dynamic forces, the Oregon University System and six of Oregon's public universities developed a multiphase initiative to assess the readiness for engagement between Oregon's public universities and the health care industry to respond to workforce needs for a transforming health care system. These six universities are: Oregon Health & Science University, Oregon Institute of Technology, Oregon State University, Portland State University, Southern Oregon University, and the University of Oregon.

In the first milestone of the initiative, a facilitated educational process, a cohort of university and health care industry representatives identified health care industry workforce and education challenges and needs. As an outcome of the discussion, the University-Industry Team members identified three potential opportunities to address Oregon's health care workforce needs.

- Develop cross-discipline/institution teams from education and industry to work directly on issues identified by the health care organizations.
- Engage in the exchange/integration of university faculty, across disciplines, departments, and institutions, into health care industry settings and industry members into university faculty and/or advisory roles.
- Engage industry members in the review and redesign of health profession program curricula to match industry job descriptions (knowledge, skills, and abilities), eliminate outdated coursework, identify relevant coursework and update proficiencies.

Following this discussion, the participants committed to further strategic engagement to address workforce needs and issues relating to a transforming health care system.¹

As an outcome of Milestone One, several university representatives reached out to or integrated health care industry representatives into current research or program efforts and emerging activities. Additionally, faculty development opportunities in new care delivery models were established.

To understand workforce needs and inform development of strategic partnerships, Milestone Two of the initiative focuses current interactions between Oregon's public universities and the health care industry. This report provides an overview of public university-health care industry relationships, information to identify gaps in relationships, knowledge, and educational offerings, and inventories to inform and map educational programs to health care employment needs.

The data and information for this report were collected through 33 in-person or telephone interviews with university and health care industry representatives, participation in meetings, document reviews, e-mail correspondence, and observations. Oregon's health care industry labor force, employment, and job vacancy data were obtained from the Oregon Employment Department.²

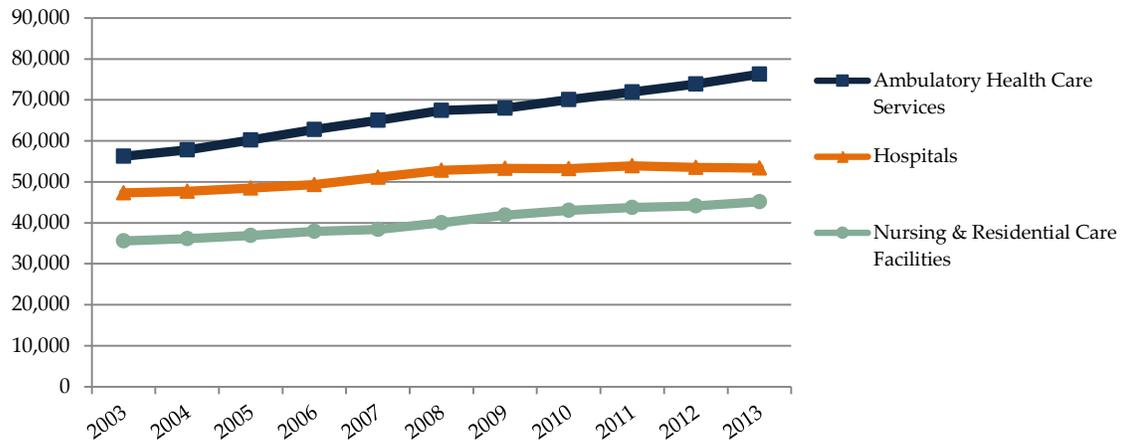
Data for the inventory of health care industry-related education programs and degrees offered by Oregon-based public and private post-secondary education institutions and number of reported graduates in 2012 were obtained from the U.S. Department of Education's National Center for Education Statistics' Integrated Post-Secondary Education Data System in December 2013.³ To the extent available, information on new health profession programs was obtained from program faculty and university websites.

Oregon's Health Care Industry Workforce

Employment in Oregon's health care industry makes up over ten percent of the state's labor market. In 2013, the annual average employment in the industry was 174,800.⁴ This number excludes health care workers employed in other industries (e.g., government, education) and those who are independent contractors or self-employed. Between 2003 and 2013, employment in Oregon's health care industry increased 26%, with the largest growth occurring in the ambulatory health care services sector (see Figure 1).⁵

Figure 1: Average Annual Employment in Oregon's Health Care Industry by Sector: 2003 -2013

Source: Oregon Employment Department



Continued new job growth in this industry is expected as a result of demographic changes and state and federal reforms. A joint study by the Oregon Health Authority, Oregon Health & Science University, and the Oregon Healthcare Workforce Institute identified a 16% increase in full-time equivalent (FTE) demand for physicians, nurse practitioners, and physician assistants in Oregon between 2013 and 2020 due to an increase in the number of insured individuals in Oregon, along with a growing and aging population.⁶ Shifting to team-based care, the projected FTE demand for nurse practitioners, physician assistants, and other front-line health care providers (e.g., pharmacists, physical therapists, mental health providers, health educators) increases significantly.

The Oregon Employment Department's workforce projections for 2012-2022 identified increases in new job growth for physician assistants (39%), sonographers (38%), audiologists (33%), and marriage and family therapists (29%) (see Table 1).⁷ The employment projections estimated the need for 10,907 additional registered nurses, 3,726 physicians, 3,712 social workers, 1,475 pharmacists, 1,470 medical and health services managers, and 1,244 physical therapists to fill new jobs and to replace those permanently leaving the labor market (e.g. retiring). These employment estimates exclude data on workers who are self-employed or independent contractors.

Table 1: Oregon Employment Department Occupational Employment Projections for Selected Health Care Occupations: 2012 to 2022

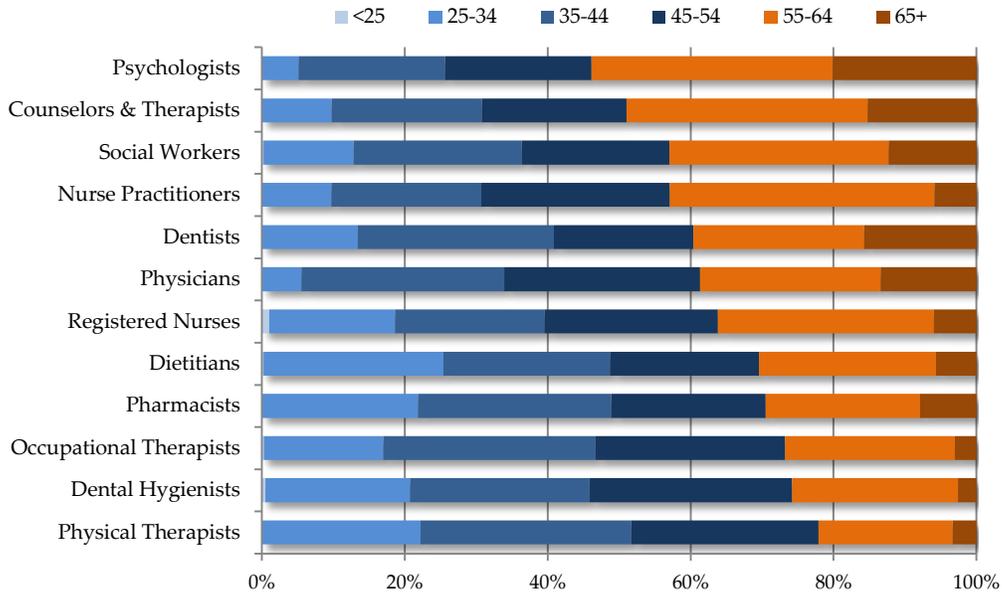
NOTE: Employment estimates exclude those who are self-employed or independent contractors

Occupational Classification Title	2012 Employment	2022 Employment	Employment Change	Percent Change	Growth Openings	Replacement Openings	Total Openings	Typical Entry Level Education
Registered Nurses	30,677	35,636	4,959	16.2%	4,959	5,948	10,907	Associate's degree
Physicians & Surgeons	8,185	9,862	1,677	20.5%	1,677	2,049	3,726	Doctoral or professional degree
Pharmacists	3,506	4,144	638	18.2%	638	837	1,475	Doctoral or professional degree
Child, Family, & School Social Workers	3,448	3,888	440	12.8%	440	730	1,170	Bachelor's degree
Medical & Health Services Managers	3,434	4,070	636	18.5%	636	834	1,470	Bachelor's degree
Dental Hygienists	3,356	3,975	619	18.4%	619	859	1,478	Associate's degree
Physical Therapists	2,362	3,025	663	28.1%	663	581	1,244	Doctoral or professional degree
Mental Health & Substance Abuse Social Workers	2,172	2,555	383	17.6%	383	460	843	Master's degree
Radiologic Technologists	1,979	2,323	344	17.4%	344	279	623	Associate's degree
Mental Health Counselors	1,916	2,282	366	19.1%	366	407	773	Master's degree
Emergency Medical Technicians & Paramedics	1,841	2,156	315	17.1%	315	502	817	Postsecondary training
Medical & Clinical Laboratory Technologists	1,683	1,899	216	12.8%	216	441	657	Bachelor's degree
Social Workers, All Other	1,573	1,767	194	12.3%	194	333	527	Bachelor's degree
Substance Abuse & Behavioral Disorder Counselors	1,527	1,862	335	21.9%	335	325	660	High school diploma or equivalent
Rehabilitation Counselors	1,397	1,598	201	14.4%	201	297	498	Master's degree
Healthcare Social Workers	1,328	1,559	231	17.4%	231	281	512	Bachelor's degree
Respiratory Therapists	1,175	1,333	158	13.5%	158	170	328	Associate's degree
Dentists, General*	1,167	1,296	129	11.1%	129	285	414	Doctoral or professional degree
Clinical, Counseling, & School Psychologists*	1,147	1,375	228	19.9%	228	312	540	Master's degree
Medical & Clinical Laboratory Technicians	1,098	1,376	278	25.3%	278	288	566	Postsecondary training
Occupational Therapists	1,084	1,336	252	23.3%	252	147	399	Master's degree
Medical Scientists, Except Epidemiologists	1,068	1,248	180	16.9%	180	225	405	Doctoral or professional degree
Nurse Practitioners	958	1,215	257	26.8%	257	186	443	Master's degree
Speech-Language Pathologists	952	1,133	181	19.0%	181	144	325	Master's degree
Physician Assistants	931	1,291	360	38.7%	360	167	527	Master's degree
Health Educators	760	879	119	15.7%	119	199	318	Bachelor's degree
Dietitians & Nutritionists*	586	684	98	16.7%	98	70	168	Bachelor's degree
Diagnostic Medical Sonographers	469	648	179	38.2%	179	66	245	Associate's degree
Marriage & Family Therapists	458	591	133	29.0%	133	97	230	Master's degree
Dentists, All Other Specialists*	296	325	29	9.8%	29	72	101	Doctoral or professional degree
Psychologists, All Other*	238	297	59	24.8%	59	65	124	Master's degree
Counselors, All Other	224	259	35	15.6%	35	48	83	Master's degree
Magnetic Resonance Imaging Technologists	222	262	40	18.0%	40	31	71	Associate's degree
Audiologists	220	293	73	33.2%	73	45	118	Master's degree
Nuclear Medicine Technologists	170	203	33	19.4%	33	24	57	Associate's degree
Radiation Therapists	166	193	27	16.3%	27	34	61	Associate's degree

*Self-employment is estimated at 10% or greater for these occupations.

The aging health care workforce and pending retirements of older workers are a concern for employers and communities, particularly during this time of health system transformation. In 2012, 54 percent of Oregon’s psychologists, 49 percent of professional counselors and marriage and family therapists, 43 percent of nurse practitioners, 43 percent of licensed social workers, 40 percent of dentists and 39 percent of physicians were 55 years of age or older (see Figure 2).⁸

Figure 2: Age Range of Selected Licensed Health Professionals in Oregon (2012)



Furthermore, in an October 2013 survey of employers, the Oregon Employment Department identified 9,990 job vacancies in the health care and social assistance industry, or 31% of all vacancies statewide (see Table 1).⁹ In the prior year, the number of vacancies reported in this industry was 6,919.¹⁰

When health care employers experience chronic vacancies or communities experience difficulty recruiting health care providers, not only is access to health care affected, but state and local economies are negatively impacted. In a study conducted by the Oregon Healthcare Workforce Institute in 2011, it was estimated that the state’s health care workforce contributed \$23.3 billion, or roughly 14 percent, to the state’s GDP and \$1.98 billion to state and local taxes in 2008.¹¹

Table 2: Top 20 Occupations that Require a College Degree as Minimum or Competitive Entry-Level Education with the Most Job Vacancies in Oregon’s Health Care Industry: Fall 2013

	Occupation	Employer Reported Vacancies Fall 2013	% Requiring Previous Work Experience	% Open 60+ Days	% Difficult to Fill	Minimum Entry-Level Education	Competitive Entry-Level Education
1	Registered Nurses	1,011	87%	45%	30%	Associate's	Bachelor's
2	Substance Abuse & Behavioral Disorder Counselors	271	100%	0%	72%	Bachelor's	Master's
3	Medical & Health Services Managers	246	87%	40%	59%	Bachelor's	Master's
4	Physicians & Surgeons	246	86%	57%	63%	Doctorate	Doctorate + Work Exp.
5	Dental Hygienists	183	0%	0%	100%	Associate's	Bachelor's
6	Mental Health Counselors	128	100%	0%	52%	Master's	Master's + Work Exp.
7	Physical Therapists	104	41%	61%	61%	Master's	Master's + Work Exp.
8	Nurse Practitioners	94	89%	57%	57%	Master's	Master's + Work Exp.
9	Medical Records & Health Information Technicians	93	53%	78%	8%	Post-sec.	Associate's
10	Mental Health & Substance Abuse Social Workers	88	63%	0%	0%	Master's	Master's + Work Exp.
11	Social & Community Service Managers	85	100%	16%	28%	Bachelor's	Bachelor's + Work Exp.
12	Occupational Health & Safety Technicians	76	0%	100%	0%	Bachelor's	Bachelor's + Work Exp.
13	Medical & Clinical Laboratory Technicians	56	63%	0%	0%	Post-sec.	Associate's
14	Cardiovascular Technologists & Technicians	52	19%	62%	0%	Associate's	Associate's + Work Exp.
15	Medical & Clinical Laboratory Technologists	44	75%	0%	75%	Bachelor's	Bachelor's + Work Exp.
16	Occupational Therapists	39	56%	56%	74%	Master's	Master's + Work Exp.
17	Health Technologists & Technicians, All Other	33	70%	0%	39%	Post-sec.	Post-sec. + Work Exp.
18	Respiratory Therapists	33	100%	0%	0%	Associate's	Bachelor's
19	Dietitians & Nutritionists	30	77%	23%	67%	Bachelor's	Bachelor's + Work Exp.
20	Rehabilitation Counselors	28	100%	0%	0%	Master's	Master's + Work Exp.

Note: Excludes data on independent contractors or self-employed workers

Source: Oregon Employment Department, *Fall 2013 Oregon Job Vacancy Survey* (2014)

Oregon's Public University-Health Care Industry Relationships

To assess the potential for developing collaborative solutions to the industry's current and emerging workforce needs, information regarding current relationships and partnerships between the six universities and the health care industry was collected from interviews with university and health care industry representatives, and through meeting participation, document reviews, and e-mail correspondence. To the extent that the information was known or made available to the university and industry representatives, nine distinct types of relationships in support of health care industry workforce development were identified (see Table 2).

Industry-Based Student Training Sites. Industry-based training provides students with supervised, "hands-on" practical experience. It also offers an employer the opportunity to observe and evaluate a potential employee. Defined by a variety of terms, including clinical rotations, internships, and practicums, clinical training experience is required by nearly all the universities' health profession education programs to meet accreditation, licensing or certification, or graduation requirements. Many of the universities' non-clinical health care-related education programs (e.g., health administration, health informatics, public health) also require students to engage in a defined organizational experience as a degree requirement.

Within all six universities, multiple types of relationships between industry and education programs were identified for the provision of industry-based student training. These relationships ranged from formal contractual agreements, as typically seen in clinical health profession education programs, to informal associations initiated by individual students in pursuit of organizational internships.

Informal Individual Relationships. Faculty representatives from the six universities identified informal, individual networks with members of the health care industry that open doors for student training or mentorship opportunities, help secure guest speakers for classroom activities, assist with job placements for students, inform the development of new programs, or provide other benefits to students or education programs. Similarly, several of the industry representatives reported that individual interactions with university representatives help to identify students or graduates for jobs with their health care organization.

While these relationships provide significant value to the students, universities, and health care organizations, these connections are established at the individual level and are not necessarily ingrained or formalized within the education program or health care organization. Thus, as reported by several industry representatives, when an individual leaves a position or changes roles, the relational benefits to the students, the educational program, and the health care organization frequently disappear.

Table 3: Reported Current University-Health Care Industry Relationships for Health Care Workforce Development: 2013-2014

University - Health Care Industry Relationship Type	Oregon Health & Science University	Oregon Institute of Technology	Oregon State University	Portland State University	Southern Oregon University	University of Oregon
Student training sites (e.g., clinical rotations, practicums, internships, externships, organizational experiences)	✓	✓	✓	✓	✓	✓
Informal individual faculty and health care industry member relationships (dependent upon the individuals)	✓	✓	✓	✓	✓	✓
Health care industry members as adjunct faculty	✓	✓	✓	✓	✓	✓
Health care industry representatives serving on educational program advisory committees		✓	✓			
Health care industry-sponsored educational events			✓			
Health care industry scholarships, grants, or fellowships offered through the university			✓			✓
Health care industry-requested professional development courses for incumbent workers	✓	✓	✓			
University-health care industry research partnership involving workforce development	✓			✓		✓
University, teaching hospital, and health system employer	✓	N/A	N/A	N/A	N/A	N/A

Health Care Industry Professionals as Adjunct Faculty. All six universities in this initiative identified health care industry-employed professionals serving as adjunct faculty. These professionals were reported to bring specific, cutting-edge or front-line expertise and insight to the educational programs and have a real-world understanding of the skills and competencies employers seek in graduates.

Health Care Industry Members on Educational Program Advisory Committees. Two universities identified existing, formally structured advisory committees for educational programs or school divisions that include health care industry representatives. The functions of these advisory entities varied by university and department, but one common role was to inform program activities.

Health Care Industry-Sponsored Educational Events. One university identified a partnership with a retail-based health care organization that has provided major sponsorship of an annual health profession educational event on campus.

Health Care Industry-Funded Scholarships, Grants, and Fellowships Offered through the University. Two universities have relationships with multiple health care organizations that fund undergraduate and graduate scholarships, grants, or fellowships through the universities for students in clinical and non-clinical degree programs. Several of the scholarships are aimed at rural, under-represented, economically-disadvantaged, or non-traditional students in health profession education programs.

Health Care Industry-Requested Professional Development Courses for Incumbent Workers. Three universities created specific professional development programs for incumbent workers at the special request of health care industry partners. The majority of these programs targeted career development skills to fill specific jobs within the requesting health care organization. One health care system requested the provision of on-site undergraduate management and leadership courses.

University-Health Care Industry Research Partnership. Three universities identified current or developing research partnerships with health care organizations that include workforce development elements. One of these universities identified new partnerships with two health care systems to research the role of art in healing environments and patient-centered care. On the university side, this grant-funded research involves faculty from multiple arts and science departments and opens research and internship opportunities and leadership development for graduate students preparing for roles as managers of art in health care settings.

University, Teaching Hospital, and Health Care System. Oregon Health & Science University (OHSU) is in a unique position among Oregon’s public universities, functioning in both university and industry roles. As a health care organization, OHSU directly experiences the workforce impact of health system transformation, engages in workforce recruitment and retention, and collaborates with other educational institutions to offer clinical training sites. As a higher education institution and teaching hospital providing education and patient care, OHSU has built-in structural relationships and mechanisms to both inform curriculum and health care workforce supply and development, and works with other health care organizations to develop educational opportunities for students.

Gaps in Relationships Identified by University Representatives

University representatives identified several gaps in relationships with the health care industry that, if filled, might improve education’s understanding of and response to industry’s workforce needs. These gaps focused on engagement of industry to address issues associated with educational costs, student training sites, curricula, program development, student diversity, faculty development and acquisition, and academic culture changes.

<i>Gap Area</i>	<i>Illustrations</i>
<i>Educational Costs</i>	<ul style="list-style-type: none"> ▪ Approach vendors collaboratively for discounts on education equipment. ▪ Mitigate the costs of technology upgrades. ▪ Supply grants for research in new delivery models to understand changes in workforce needs and to incorporate into curricula. ▪ Identify ways to lower costs of education for the student, employer and university. ▪ Assist with students’ expenses for externships (e.g., housing, transportation). ▪ Supply more fellowships and scholarships for students. ▪ Extend lengths of internships; enhance internships with pay. ▪ Assist with startup costs for new programs and research and development capacity.
<i>Student Training Sites</i>	<ul style="list-style-type: none"> ▪ Increase the number of sites, in part to expand admissions capacity. ▪ Provide clinical training opportunities within new health care delivery models (e.g., Patient-Centered Primary Care Home, inter-professional team care). ▪ Create a single clearinghouse for clinical and organizational placements.

<i>Curricula and Program Development</i>	<ul style="list-style-type: none"> ▪ Work together to incorporate new skills in curricula and avoid affecting accreditation standards. ▪ Identify and remove unnecessary training to open up time for more or new skills training. ▪ Engage industry effectively to tell educators what is needed, including necessary skills, and competency levels.
<i>Student Diversity</i>	<ul style="list-style-type: none"> ▪ Greater support to shape the education pipeline. ▪ Develop more industry-funded scholarships and fellowships.
<i>Faculty Development</i>	<ul style="list-style-type: none"> ▪ Engage in a shared responsibility for faculty development. ▪ Engage industry members as faculty.
<i>Change in Academic Culture</i>	<ul style="list-style-type: none"> ▪ Align faculty incentives and promotion opportunities with student outcomes. ▪ Express urgency to university leadership on process improvements for curricula and program development or modifications. ▪ Support professors' time to create courses/new programs. ▪ Help promote culture shift within universities and academia.

Gaps in Relationships Identified by Industry Representatives

Industry representatives identified gaps in relationships with education that if filled would be of particular value during this period of health system transformation. The responses from industry reflected a desire to tap into faculty expertise to help navigate through an unknown future.

<i>Gap Area</i>	<i>Illustrations</i>
<i>Navigating through Transformation/ Change Management</i>	<ul style="list-style-type: none"> ▪ “We are learning as we go”; “We’re doing things never have done before”; Understanding the workforce implications of new care delivery models and in the provision high quality, cost efficient and cost effective care. ▪ Assistance in redefining roles and job descriptions to fit new care models. ▪ Assistance in helping the workforce and organizations adapt to a fledgling transformation. ▪ Assistance in retooling the workplace and human resource policies to retain older workers (e.g., flexible workplaces, redesigned workplaces).

Gaps in Needs Identified by University Representatives

When asked what they need to know from the health care industry, most often university representatives responded first with a quantitative query (“tell us how many you need”), reflecting graduate production output measures. Faculty focused on the need for accurate, reliable data on workforce planning needs to inform programs and admissions decisions.

<i>Gap Area</i>	<i>Illustrations</i>
<i>Data and Information</i>	<ul style="list-style-type: none"> ▪ Accurate take on current demand and projections; quantifying need with data; data from industry ▪ The right contacts within the health care organization for accurate and reliable assessment of workforce needs ▪ What continuing education and professional development programs are needed ▪ Clarity from industry on needs, including skills and competency levels

Gaps in Needs Identified by Industry Representatives

With the transformation of the health care delivery system, industry is changing how it organizes its workforce. Health care providers are becoming members of inter-professional patient-centered care teams and integrating greater use of technology. New job roles and new occupations are emerging. These redesigned structures and functions require additional knowledge, skills and competencies. When asked what they needed from educational institutions, most often the industry representatives’ initial response was a list of qualitative attributes focused on workforce skills and competencies related to a transforming health care system. These included interpersonal, technical, managerial, financial, and leadership skills for all employees. Industry representatives also reported a need for professional development and continuing education opportunities focused on leadership training for health care clinicians.

<i>Gap Area</i>	<i>Illustrations</i>
<i>New Workforce Competencies for New Health Care Systems</i>	<ul style="list-style-type: none"> ▪ Interpersonal skills, communication skills, team skills, customer service skills ▪ Cultural competency ▪ Computer skills and etiquette; electronic health records skills ▪ Managerial skills, project management, change management, systems thinking, lean management ▪ Quality and process improvement skills, critical thinking ▪ Financial management; understanding budgets ▪ Leadership skills (“Everyone in health care is a leader”); confronting poor practice; taking responsibility

Industry representatives further identified need for more professionals who have strategic roles in new health care delivery models and in health system transformation. This includes primary care providers, professionals who can mine, translate, and use data to improve patient and population health, and those who can help design lean, effective systems.

<i>Gap Area</i>	<i>Illustrations</i>
<i>Workforce/Professionals</i>	<ul style="list-style-type: none"> ▪ Physicians ▪ Nurse practitioners ▪ Primary care providers ▪ Physical therapists ▪ Occupational therapists ▪ Speech-language pathologists ▪ Mental health providers ▪ Data analysts and informaticists; “people who can extract and translate data for operations and patient care improvement” ▪ Systems engineers; systems improvement specialists ▪ Process improvement engineers

Shared Concerns

In the analysis of the interviews with university and health care industry representatives, four common concerns emerged regarding the future health care workforce. These issues focused on the development, supply, and diversity of the health care workforce, and generational differences.

<i>Shared Concerns</i>	<i>Illustrations</i>
<i>The Future Health Care Workforce</i>	<ul style="list-style-type: none"> ▪ Supply of qualified graduates/workers ▪ Increasing the diversity of the student body/workforce ▪ Building a qualified educational pipeline (including K-12 grades) ▪ Changing generational values and work standards exhibited by new students/younger workers

The Hot Spots: Where Change is Necessary

Several challenges, or “hot spots”, were identified by the health care industry where change and greater strategic alignment with the universities is needed. These include:

1. *Workforce Competencies for Transformation and New Care Delivery Systems:* The health care industry has to change to adapt to new public policy goals, performance measures, and payment structures. Therefore, new and incumbent workers in the health care industry require a comprehensive set of skills specific to working in and leading a transforming health care system that is focused on improving population health and patient outcomes through high-quality health care teams. Identifying and integrating these new skills into curricula is vital to prepare students as competitive candidates for health care industry jobs.
2. *Navigating an Unknown Future:* Health care transformation means that the industry is being asked to do things never done before. As a result, the industry is redesigning and retooling the workforce, health care providers and managers are taking on new roles, and job descriptions need to be rewritten. Industry representatives have invited faculty to join them in understanding the workforce impact of transformation and new care delivery structures, creating research and faculty development opportunities, and providing real time workforce data needs.
3. *Workforce Supply:* Shifting the focus of the health care system to health promotion, disease prevention, chronic care management, and population health, through lean, effective organizational systems places greater emphasis on the need for more primary care and mental health clinicians, data analysts, and systems and process improvement specialists. Oregon’s health care industry members, particularly those representing long-term care, have also expressed difficulty in recruiting physical therapists, occupational therapists, and speech-language pathologists.

Health care employers have strategically focused on increasing the diversity of their workforce, which also is associated with improved access to care for racial, ethnic, and cultural minority patients, and greater patient choice and satisfaction.

Finally, as more of Oregon’s older health care workers retire or reduce their work hours, greater alignment and communication between the industry and universities is needed to match graduate supply with projected need and replacement demand.

4. *Investments in Education:* Shared concerns and goals regarding the state’s health care workforce creates a compelling strategic opportunity for universities and health care industry

representatives to jointly approach the Higher Education Coordinating Commission for additional investments in health profession education and industry-related programs and approval of new health profession programs.

The Next Phase

Health care transformation and a dynamic health care environment make a compelling argument for an ongoing strategic venue for the universities and the health care industry to engage in meaningful and continuing communication. This approach will inform the universities' strategic plans, promote timely responses to workforce and education needs, and advance policy solutions and appropriations requests to the Higher Education Coordinating Commission and state legislature.

As a neutral convener, health care workforce research entity, and statutorily-designated advisor to public agencies, the Oregon Healthcare Workforce Institute (OHWI) has the expertise and can serve as organizer and staff of this approach. OHWI's networks and coordinated efforts open channels for information-sharing while streamlining connections and reducing burdens on the universities and health care organizations.

In addition, OHWI can work with individual universities and education programs to inform strategic planning, to adjust to the new directions and needs of the health care industry, and to produce competitive graduates.

Endnotes

- ¹ Oregon Healthcare Workforce Institute (2014). *Milestone One Report: Engaged, Educated University Cohort*. Contract # P-2013-95: Health Care Workforce Preparedness Initiative, submitted to the Oregon University System, January 2014.
- ² Oregon Employment Department. <http://www.qualityinfo.org/olmisj/OlmisZine>.
- ³ U.S. Department of Education, National Center for Education Statistics. *Integrated Post-Secondary Education Data System*. Accessed December 2013 at <http://nces.ed.gov/ipeds/>.
- ⁴ Oregon Employment Department. *Current Employment Statistics: Ambulatory Health Services, Hospitals, Nursing and Residential Care Facilities*. Available at <http://www.qualityinfo.org/olmisj/CES>
- ⁵ Oregon Employment Department. *Current Employment Statistics: Health Care Industry*. Available at <http://www.qualityinfo.org/olmisj/CES>.
- ⁶ Oregon Health Authority, Oregon Health & Science University, Oregon Healthcare Workforce Institute (2014). *The Projected Demand for Physicians, Nurse Practitioners, and Physician Assistants in Oregon: 2013-2020*. Available at <http://www.oregon.gov/oha/OHPR/HCW/Resources/Projected%20Demand%20for%20Physicians,%20Nurse%20Practitioners,%20and%20Physician%20Assistants%20in%20Oregon%20-%202013-2020.pdf>
- ⁷ Oregon Employment Department (2014). *Employment Projections by Industry and Occupation 2012-2022: Oregon*. Available at <http://www.qualityinfo.org/pubs/projections/sw.pdf>
- ⁸ Oregon Health Authority (2013). *Oregon Health Professions: Occupational and County Profiles, February 2013*. Available at <http://oregonhwi.org/documents/2012ProfilesReportFINAL1.pdf>
- ⁹ Oregon Employment Department (2013). *Help Wanted in Oregon: Results from the Fall 2013 Job Vacancy Survey*. Available at <http://www.qualityinfo.org/pubs/vacancy/quarterly/sw-1013.pdf>
- ¹⁰ Oregon Employment Department (2013). *Help Wanted in Oregon: Results from the 2012 Job Vacancy Survey*. Available at <http://www.qualityinfo.org/pubs/vacancy/sw.pdf>
- ¹¹ Oregon Healthcare Workforce Institute (2011). *The Economic Contributions of Oregon's Health Care Workforce*. Available at <http://oregonhwi.org/resources/documents/FinalEconORHCW211.pdf>.

Appendices

Appendix A
Oregon Health Care-Related Occupational Employment Projections: 2012 to 2022
Source: Oregon Employment Department (2014)

Standard Occupational Classification Code and Title		2012 Employment	2022 Employment	Employment Change	Percent Change	Growth Openings	Replacement Openings	Total Openings	Typical Entry Level Education
29-1141	Registered Nurses	30,677	35,636	4,959	16.2%	4,959	5,948	10,907	Associate's degree
31-1014	Nursing Assistants	13,546	16,308	2,762	20.4%	2,762	2,576	5,338	Postsecondary training
43-6013	Medical Secretaries	12,382	16,167	3,785	30.6%	3,785	1,490	5,275	High school diploma or equivalent
39-9021	Personal Care Aides	11,682	15,125	3,443	29.5%	3,443	836	4,279	Less than high school
31-1011	Home Health Aides	7,101	9,502	2,401	33.8%	2,401	1,351	3,752	Less than high school
29-1060	Physicians and Surgeons	8,185	9,862	1,677	20.5%	1,677	2,049	3,726	Doctoral or professional degree
31-9092	Medical Assistants	7,691	9,744	2,053	26.7%	2,053	1,467	3,520	Postsecondary training
29-2021	Dental Hygienists	3,356	3,975	619	18.4%	619	859	1,478	Associate's degree
29-1051	Pharmacists	3,506	4,144	638	18.2%	638	837	1,475	Doctoral or professional degree
11-9111	Medical and Health Services Managers	3,434	4,070	636	18.5%	636	834	1,470	Bachelor's degree
31-9091	Dental Assistants	4,476	4,962	486	10.9%	486	928	1,414	Postsecondary training
29-2071	Medical Records and Health Information Technicians	3,014	3,630	616	20.4%	616	797	1,413	Postsecondary training
29-2052	Pharmacy Technicians	4,699	5,550	851	18.1%	851	465	1,316	Postsecondary training
29-1123	Physical Therapists	2,362	3,025	663	28.1%	663	581	1,244	Doctoral or professional degree
29-2061	Licensed Practical and Licensed Vocational Nurses	2,705	3,242	537	19.9%	537	660	1,197	Postsecondary training
21-1021	Child, Family, and School Social Workers	3,448	3,888	440	12.8%	440	730	1,170	Bachelor's degree
19-4021	Biological Technicians	2,626	3,002	376	14.3%	376	787	1,163	Associate's degree
43-4111	Interviewers, Except Eligibility and Loan	3,069	3,579	510	16.6%	510	580	1,090	High school diploma or equivalent
66-2051	Home Care Workers	11,827	12,868	1,041	8.8%	1,041	0	1,041	Not Classified
21-1023	Mental Health and Substance Abuse Social Workers	2,172	2,555	383	17.6%	383	460	843	Master's degree
29-2041	Emergency Medical Technicians and Paramedics	1,841	2,156	315	17.1%	315	502	817	Postsecondary training
31-9099	Healthcare Support Workers, All Other	2,108	2,487	379	18.0%	379	402	781	High school diploma or equivalent

Standard Occupational Classification Code and Title		2012 Employment	2022 Employment	Employment Change	Percent Change	Growth Openings	Replacement Openings	Total Openings	Typical Entry Level Education
21-1014	Mental Health Counselors	1,916	2,282	366	19.1%	366	407	773	Master's degree
21-1011	Substance Abuse and Behavioral Disorder Counselors	1,527	1,862	335	21.9%	335	325	660	High school diploma or equivalent
29-2011	Medical and Clinical Laboratory Technologists	1,683	1,899	216	12.8%	216	441	657	Bachelor's degree
29-2034	Radiologic Technologists	1,979	2,323	344	17.4%	344	279	623	Associate's degree
31-9011	Massage Therapists*	1,689	2,126	437	25.9%	437	179	616	Postsecondary training
29-2081	Opticians, Dispensing	1,030	1,316	286	27.8%	286	296	582	High school diploma or equivalent
29-2012	Medical and Clinical Laboratory Technicians	1,098	1,376	278	25.3%	278	288	566	Postsecondary training
19-3031	Clinical, Counseling, and School Psychologists*	1,147	1,375	228	19.9%	228	312	540	Master's degree
21-1029	Social Workers, All Other	1,573	1,767	194	12.3%	194	333	527	Bachelor's degree
29-1071	Physician Assistants	931	1,291	360	38.7%	360	167	527	Master's degree
21-1022	Healthcare Social Workers	1,328	1,559	231	17.4%	231	281	512	Bachelor's degree
21-1015	Rehabilitation Counselors	1,397	1,598	201	14.4%	201	297	498	Master's degree
29-2099	Health Technologists and Technicians, All Other	1,546	1,873	327	21.2%	327	153	480	Postsecondary training
29-1171	Nurse Practitioners	958	1,215	257	26.8%	257	186	443	Master's degree
31-1013	Psychiatric Aides	1,099	1,308	209	19.0%	209	209	418	High school diploma or equivalent
29-1021	Dentists, General*	1,167	1,296	129	11.1%	129	285	414	Doctoral or professional degree
19-1042	Medical Scientists, Except Epidemiologists	1,068	1,248	180	16.9%	180	225	405	Doctoral or professional degree
31-9093	Medical Equipment Preparers	1,207	1,381	174	14.4%	174	230	404	Postsecondary training
31-9097	Phlebotomists	1,096	1,288	192	17.5%	192	209	401	Postsecondary training
29-1122	Occupational Therapists	1,084	1,336	252	23.3%	252	147	399	Master's degree
51-9081	Dental Laboratory Technicians	806	920	114	14.1%	114	272	386	High school diploma or equivalent
49-9062	Medical Equipment Repairers*	592	807	215	36.3%	215	165	380	Postsecondary training
29-9099	Healthcare Practitioners and Technical Workers, All Other	811	964	153	18.9%	153	221	374	Associate's degree
29-9011	Occupational Health and Safety Specialists	946	1,057	111	11.7%	111	257	368	Bachelor's degree
31-9094	Medical Transcriptionists*	1,237	1,365	128	10.4%	128	236	364	Postsecondary training
31-2022	Physical Therapist Aides	605	826	221	36.5%	221	134	355	High school diploma or equivalent

Standard Occupational Classification Code and Title		2012 Employment	2022 Employment	Employment Change	Percent Change	Growth Openings	Replacement Openings	Total Openings	Typical Entry Level Education
29-1126	Respiratory Therapists	1,175	1,333	158	13.5%	158	170	328	Associate's degree
29-1127	Speech-Language Pathologists	952	1,133	181	19.0%	181	144	325	Master's degree
21-1091	Health Educators	760	879	119	15.7%	119	199	318	Bachelor's degree
31-2021	Physical Therapist Assistants	582	768	186	32.0%	186	129	315	Associate's degree
29-2055	Surgical Technologists	990	1,204	214	21.6%	214	98	312	Postsecondary training
29-1041	Optometrists*	404	550	146	36.1%	146	117	263	Doctoral or professional degree
29-2031	Cardiovascular Technologists and Technicians	630	796	166	26.4%	166	89	255	Associate's degree
29-2032	Diagnostic Medical Sonographers	469	648	179	38.2%	179	66	245	Associate's degree
21-1013	Marriage and Family Therapists	458	591	133	29.0%	133	97	230	Master's degree
17-2081	Environmental Engineers	458	544	86	18.8%	86	112	198	Bachelor's degree
29-1011	Chiropractors*	459	566	107	23.3%	107	90	197	Doctoral or professional degree
29-1199	Health Diagnosing and Treating Practitioners, All Other*	383	499	116	30.3%	116	79	195	Doctoral or professional degree
51-9083	Ophthalmic Laboratory Technicians	373	425	52	13.9%	52	126	178	High school diploma or equivalent
29-1031	Dietitians and Nutritionists*	586	684	98	16.7%	98	70	168	Bachelor's degree
29-2053	Psychiatric Technicians	478	586	108	22.6%	108	47	155	Postsecondary training
19-3039	Psychologists, All Other*	238	297	59	24.8%	59	65	124	Master's degree
29-1181	Audiologists	220	293	73	33.2%	73	45	118	Master's degree
21-1094	Community Health Workers	287	328	41	14.3%	41	75	116	Postsecondary training
29-1029	Dentists, All Other Specialists*	296	325	29	9.8%	29	72	101	Doctoral or professional degree
29-9091	Athletic Trainers	207	250	43	20.8%	43	56	99	Bachelor's degree
31-2011	Occupational Therapy Assistants	180	233	53	29.4%	53	45	98	Associate's degree
29-1161	Nurse Midwives	171	235	64	37.4%	64	33	97	Master's degree
29-2057	Ophthalmic Medical Technicians	243	304	61	25.1%	61	24	85	Postsecondary training
21-1019	Counselors, All Other	224	259	35	15.6%	35	48	83	Master's degree
29-1151	Nurse Anesthetists	178	225	47	26.4%	47	35	82	Master's degree
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	182	202	20	11.0%	20	53	73	Bachelor's degree
29-2035	Magnetic Resonance Imaging Technologists	222	262	40	18.0%	40	31	71	Associate's degree

Standard Occupational Classification Code and Title		2012 Employment	2022 Employment	Employment Change	Percent Change	Growth Openings	Replacement Openings	Total Openings	Typical Entry Level Education
29-1124	Radiation Therapists	166	193	27	16.3%	27	34	61	Associate's degree
17-2031	Biomedical Engineers	115	143	28	24.4%	28	29	57	Bachelor's degree
29-2033	Nuclear Medicine Technologists	170	203	33	19.4%	33	24	57	Associate's degree
29-1125	Recreational Therapists	131	160	29	22.1%	29	27	56	Bachelor's degree
19-1021	Biochemists and Biophysicists	109	133	24	22.0%	24	31	55	Master's degree
29-2051	Dietetic Technicians	175	211	36	20.6%	36	17	53	High school diploma or equivalent
51-9082	Medical Appliance Technicians	95	109	14	14.7%	14	32	46	High school diploma or equivalent
19-1022	Microbiologists	109	122	13	11.9%	13	31	44	Bachelor's degree
29-2091	Orthotists and Prosthetists	106	137	31	29.3%	31	10	41	Bachelor's degree
29-1081	Podiatrists*	64	89	25	39.1%	25	13	38	Doctoral or professional degree
29-1129	Therapists, All Other*	99	121	22	22.2%	22	12	34	Bachelor's degree
29-2092	Hearing Aid Specialists	116	136	20	17.2%	20	11	31	High school diploma or equivalent
29-9012	Occupational Health and Safety Technicians	65	70	5	7.7%	5	18	23	Bachelor's degree
19-1041	Epidemiologists	35	36	1	2.9%	1	7	8	Doctoral or professional degree
31-2012	Occupational Therapy Aides	18	21	3	16.7%	3	5	8	High school diploma or equivalent
29-1128	Exercise Physiologists	37	38	1	2.7%	1	4	5	Bachelor's degree

Data Notes:

*The OED estimates that self-employment is 10% or greater in these occupations

Excludes data on self-employed workers or independent contractors

Appendix B

Matrix of Employment Data, Employment Projections Mapped to Oregon Educational Program and Degree for Selected Health Care-Related Professions Requiring a Bachelor or Higher Degree for Typical or Competitive Entry Level Education

Data Sources:

Employment data and projections: Oregon Employment Department, *Employment Projections by Industry and Occupation 2012-2022: Oregon* (2014)

Education data: U.S. Department of Education, National Center for Education Statistics, Integrated Post-Secondary Education Data System (December 2013)

Note: Employment data and projected job openings exclude data on self-employed workers and independent contractors

Registered Nurses (SOC 29-1141)

Initial license/entry to practice requires an associate or more advanced degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
30,677	10,907	Blue Mountain Community College	Registered Nursing/Registered Nurse	Associate	18
		Central Oregon Community College	Registered Nursing/Registered Nurse	Associate	47
		Chemeketa Community College	Registered Nursing/Registered Nurse	Associate	35
		Clackamas Community College	Registered Nursing/Registered Nurse	Associate	35
		Clatsop Community College	Registered Nursing/Registered Nurse	Associate	13
		Columbia Gorge Community College	Registered Nursing/Registered Nurse	Associate	19
		ITT Technical Institute-Portland	Registered Nursing/Registered Nurse	Associate	0
		Lane Community College	Registered Nursing/Registered Nurse	Associate	80
		Linn-Benton Community College	Registered Nursing/Registered Nurse	Associate	47
		Mt Hood Community College	Registered Nursing/Registered Nurse	Associate	64
		Oregon Coast Community College	Registered Nursing/Registered Nurse	Associate	18
		Portland Community College	Registered Nursing/Registered Nurse	Associate	34
		Rogue Community College	Registered Nursing/Registered Nurse	Associate	31
		Southwestern Oregon Community College	Registered Nursing/Registered Nurse	Associate	26
		Treasure Valley Community College	Registered Nursing/Registered Nurse	Associate	19
		Umpqua Community College	Registered Nursing/Registered Nurse	Associate	60
		Concordia University-Portland	Registered Nursing/Registered Nurse	Bachelor's	29
		George Fox University	Registered Nursing/Registered Nurse	Bachelor's	40
		Linfield College-Adult Degree Program	Registered Nursing/Registered Nurse	Bachelor's	89
		Linfield College-Nursing & Health Sciences	Registered Nursing/Registered Nurse	Bachelor's	172
		Oregon Health & Science University	Registered Nursing/Registered Nurse	Bachelor's	296
		University of Portland	Registered Nursing/Registered Nurse	Bachelor's	185
		Oregon Health & Science University	Registered Nursing/Registered Nurse	Doctorate	4
		University of Portland	Clinical Nurse Leader	Master's	13
		University of Portland	Clinical Nurse Specialist	Master's	0
		University of Portland	Nursing Administration	Master's	0
		Mt Hood Community College	Nursing Education	Associate	0
		Oregon Health & Science University	Nursing Education	Master's	3

Nurse Practitioners (SOC 29-1171)

Initial license/entry to practice requires a master's or doctorate degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
958	443	Oregon Health & Science University	Family Practice Nurse/Nursing	Master's	17
		University of Portland	Family Practice Nurse/Nursing	Master's	0
		Oregon Health & Science University	Family Practice Nurse/Nursing	Post-master's	0
		Oregon Health & Science University	Family Practice Nurse/Nursing	Doctorate	4
		Oregon Health & Science University	Geriatric Nurse/Nursing	Post-master's	0
		Oregon Health & Science University	Psychiatric/Mental Health Nurse/Nursing	Master's	12
		Oregon Health & Science University	Psychiatric/Mental Health Nurse/Nursing	Post-master's	1
		Oregon Health & Science University	Psychiatric/Mental Health Nurse/Nursing	Doctorate	1
		Oregon Health & Science University	Nursing Practice	Doctorate	6
		University of Portland	Nursing Practice	Doctorate	3

Nurse Anesthetists (SOC 29-1151)

Initial license/entry to practice requires a master's degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
178	82	Oregon Health & Science University	Nurse Anesthetist	Master's	12

Nurse Midwives (SOC 29-1161)

Initial license/entry to practice requires a master's degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
171	97	Oregon Health & Science University	Nurse Midwife/Nursing Midwifery	Master's	9
		Oregon Health & Science University	Nurse Midwife/Nursing Midwifery	Post-master's	0

Physicians and Surgeons (SOC 29-1060)

Initial license/entry to practice requires a doctorate degree and post-doctoral residency

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
8,185	3,726	Oregon Health & Science University	Medicine	Doctorate	122
		Western University of Health Sciences College of Osteopathic Medicine of the Pacific - Northwest	Osteopathic Medicine	Doctorate	New Program

Physician Assistants (SOC 29-1071)

Initial license/entry to practice requires a master's degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
931	527	Oregon Health & Science University	Physician Assistant	Master's	35
		Pacific University	Physician Assistant	Master's	42

Chiropractors (SOC 29-1011)

Initial license/entry to practice requires a doctorate degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
459	197	University of Western States	Chiropractic	Doctorate	125

Podiatrists (SOC 29-1081)

Initial license/entry to practice requires a doctorate degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
64	38	N/A	N/A	N/A	N/A

Optometrists (SOC 29-1041)

Initial license/entry to practice requires a doctorate degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
404	263	Pacific University	Optometry	Doctorate	89

Dentists (SOC 29-1021 and 29-1029)

Initial license/entry to practice requires a doctorate degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
1,463	515	Oregon Health & Science University	Dentistry	Doctorate	68
		Oregon Health & Science University	Endodontics/Endodontology	Post-master's	3
		Oregon Health & Science University	Orthodontics/Orthodontology	Master's	4
		Oregon Health & Science University	Orthodontics/Orthodontology	Post-master's	4
		Oregon Health & Science University	Periodontics/Periodontology	Master's	2
		Oregon Health & Science University	Periodontics/Periodontology	Post-master's	3

Dental Hygienists (SOC 29-2021)

Initial license/entry to practice requires an associate degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
3,356	1,478	Lane Community College	Dental Hygiene/Hygienist	Associate	30
		Mt Hood Community College	Dental Hygiene/Hygienist	Associate	17
		Oregon Institute of Technology	Dental Hygiene/Hygienist	Associate	27
		Portland Community College	Dental Hygiene/Hygienist	Associate	28
		Treasure Valley Community College	Dental Hygiene/Hygienist	Associate	2
		Oregon Institute of Technology	Dental Hygiene/Hygienist	Bachelor's	54
		Pacific University	Dental Hygiene/Hygienist	Bachelor's	33

Health Diagnosing and Treating Practitioners, All Other (SOC 29-1199)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
383	195	National College of Natural Medicine	Naturopathic Medicine/Naturopathy	Doctorate	83
		National College of Natural Medicine	Acupuncture & Oriental Medicine	Master's	28
		Oregon College of Oriental Medicine	Acupuncture & Oriental Medicine	Master's	61
		Oregon College of Oriental Medicine	Acupuncture & Oriental Medicine	Doctorate	9

Health Care Practitioners and Technical Workers, All Other (SOC 29-9099)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
811	374	Birthingway College of Midwifery	Direct Entry Midwifery	2 ≤ but < 4 years	3
		Birthingway College of Midwifery	Direct Entry Midwifery	Bachelor's	1
		American College of Healthcare Sciences	Alternative & Complementary Medicine & Medical Systems	Master's	1
		American College of Healthcare Sciences	Alternative & Complementary Medicine & Medical Systems	Post-baccalaureate	4

Pharmacists (SOC 29-1051)

Initial license/entry to practice requires a doctorate degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
3506	1,475	Oregon State University	Pharmacology & Toxicology	Master's	1
		Oregon Health & Science University	Pharmacology & Toxicology	Doctorate	3
		Oregon State University	Pharmacology & Toxicology	Doctorate	2
		Oregon State University	Pharmacy	Doctorate	86
		Pacific University	Pharmacy	Doctorate	92
		Oregon State University	Pharmacy, Pharmaceutical Sciences, & Administration, Other	Master's	1
		Oregon State University	Pharmacy, Pharmaceutical Sciences, & Administration, Other	Doctorate	2

Medical & Clinical Laboratory Technologists (SOC 29-2011)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
1,683	657	Oregon Institute of Technology	Clinical Laboratory Science/Medical Technology/Technologist	Bachelor's	35

Cardiovascular Technologists and Technicians (SOC 29-2031)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
630	255	Oregon Institute of Technology	Echocardiography	Bachelor's	
		Oregon Institute of Technology	Vascular Technology	Bachelor's	

Audiologists (SOC 29-1121)

Initial license/entry to practice requires a doctorate degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
220	118	Pacific University	Audiology/Audiologist	Doctorate	New Program
		Portland State University	Audiology	Bachelor's	65
		Portland State University	Audiology	Master's	31

Speech & Language Pathologists (SOC 29-1127)

Initial license/entry to practice requires a master's degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
952	325	Pacific University	Communication Sciences & Disorders	Bachelor's	New Program
		University of Oregon	Communication Sciences & Disorders	Bachelor's	40
		Pacific University	Communication Sciences & Disorders	Post-baccalaureate	New Program
		University of Oregon	Communication Sciences & Disorders	Post-baccalaureate	23
		Pacific University	Communication Sciences & Disorders	Master's	New Program
		Portland State University	Communication Sciences & Disorders	Master's	New Program
		University of Oregon	Communication Sciences & Disorders	Master's	24

Occupational Therapists (SOC 29-1122)

Initial license/entry to practice requires a doctorate degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
1,084	399	Pacific University	Occupational Therapy/Therapist	Doctorate	New Program
		Pacific University	Occupational Therapy/Therapist	Master's	30

Physical Therapists (SOC 29-1123)

Initial license/entry to practice requires a doctorate degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
2,362	1,244	George Fox University	Physical Therapy/Therapist	Doctorate	New Program
		Pacific University	Physical Therapy/Therapist	Doctorate	39

Respiratory Therapists (SOC 29-1126)

Initial license/entry to practice requires an associate degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
1175	328	Lane Community College	Respiratory Care Therapy/Therapist	Associate	32
		Mt Hood Community College	Respiratory Care Therapy/Therapist	Associate	28
		Concorde Career College-Portland	Respiratory Care Therapy/Therapist	2 ≤ but < 4 years	26
		Oregon Institute of Technology	Respiratory Care Therapy/Therapist	Bachelor's	21

Recreational Therapists (SOC 29-1125)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
131	56	N/A	N/A	N/A	N/A

Therapists, All Other (SOC 29-1129)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
99	34	Marylhurst University	Art Therapy/Therapist	Master's	14
		Marylhurst University	Art Therapy/Therapist	Post-master's	0
		Marylhurst University	Music Therapy/Therapist	Bachelor's	6
		Willamette University	Music Therapy/Therapist	Bachelor's	0

Orthotists and Prosthetists (SOC 29-2091)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
106	41	N/A	N/A	N/A	N/A

Dietitians and Nutritionists (SOC 29-1031)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
586	168	Oregon Health & Science University	Clinical Nutrition/Nutritionist	Master's	3
		Oregon Health & Science University	Dietetics/Dietitian	Post-baccalaureate	21
		Oregon Health & Science University	Dietetics/Dietitian	Master's	0
		Oregon State University	Foods, Nutrition, & Related Services	Bachelor's	41
		Portland State University	Foods, Nutrition, & Related Services	Post-baccalaureate	16
		Oregon State University	Foods, Nutrition, & Related Services	Master's	3

Health Educators (SOC 21-1091)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
760	318	Oregon State University	Public Health Education & Promotion	Bachelor's	3
		Western Oregon University	Public Health Education & Promotion	Bachelor's	68
		Portland State University	Public Health Education & Promotion	Master's	26
		Portland State University	Community Health & Preventive Medicine	Bachelor's	145
		Oregon State University	Public Health	Bachelor's	93
		Oregon State University	Public Health	Post-baccalaureate	
		Oregon Health & Science University	Public Health	Post-baccalaureate	7
		Oregon Health & Science University	Public Health	Master's	40
		Oregon State University	Public Health	Master's	51
		Oregon State University	Public Health	Doctorate	7
		Portland State University	Public Health, Other	Bachelor's	98

Athletic Trainers (SOC 29-9091)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
207	99	Southwestern Oregon Community College	Athletic Training/Trainer	Associate	0
		Treasure Valley Community College	Athletic Training/Trainer	Associate	1
		George Fox University	Athletic Training/Trainer	Bachelor's	8
		Linfield College-McMinnville Campus	Athletic Training/Trainer	Bachelor's	6
		Oregon State University	Athletic Training/Trainer	Bachelor's	14

Radiologic Technologists (SOC 29-2034)

Effective 1/1/2015 national certification will require an associate or more advanced degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
1,979	623	Linn-Benton Community College	Radiologic Technology/Science - Radiographer	Associate	22
		Oregon Institute of Technology	Radiologic Technology/Science - Radiographer	Bachelor's	50

Radiation Therapists (SOC 29-1124)

Effective 1/1/2015 national certification will require an associate or more advanced degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
166	61	Portland Community College	Medical Radiologic Technology/Science - Radiation Therapist	Associate	31
		Treasure Valley Community College	Medical Radiologic Technology/Science - Radiation Therapist	Associate	N/A
		Oregon Health & Science University	Medical Radiologic Technology/Science - Radiation Therapist	Bachelor's	9

Diagnostic Medical Sonographers (SOC 29-2032)

Effective 1/1/2015 national certification will require an associate or more advanced degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
469	245	Oregon Institute of Technology	Diagnostic Medical Sonography/Sonographer & Ultrasound Technician	Bachelor's	82

Nuclear Medicine Technologists (SOC 29-2033)

Effective 1/1/2015 national certification will require an associate or more advanced degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
170	57	Oregon Institute of Technology	Nuclear Medical Technology/Technologist	Bachelor's	16

Social Workers (SOC 21-1021, 20-1022, 21-1023, 21-1029)

Initial license/entry to practice for health care social worker requires a master's degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
8,521	3,052	Concordia University-Portland	Social Work	Bachelor's	14
		George Fox University	Social Work	Bachelor's	17
		Pacific University	Social Work	Bachelor's	8
		Portland State University	Social Work	Bachelor's	48
		University of Portland	Social Work	Bachelor's	17
		Warner Pacific College	Social Work	Bachelor's	11
		Pacific University	Social Work	Master's	New Program
		Portland State University	Social Work	Master's	183
		Portland State University	Social Work	Doctorate	5

Psychologists (SOC 19-3031, 19-3039)

Initial license/entry to practice requires a master's degree

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
1,385	664	Oregon Institute of Technology	Clinical, Counseling & Applied Psychology	Bachelor's	38
		University of Oregon	Clinical, Counseling & Applied Psychology	Post-baccalaureate	4
		Corban University	Clinical, Counseling & Applied Psychology	Master's	3
		George Fox University	Clinical, Counseling & Applied Psychology	Master's	58
		Lewis & Clark College	Clinical, Counseling & Applied Psychology	Master's	39
		Multnomah University	Clinical, Counseling & Applied Psychology	Master's	16
		Northwest Christian University	Clinical, Counseling & Applied Psychology	Master's	14
		Pacific University	Clinical, Counseling & Applied Psychology	Master's	78
		University of Oregon	Clinical, Counseling & Applied Psychology	Master's	3
		George Fox University	Clinical, Counseling & Applied Psychology	Post-master's	0
		Lewis & Clark College	Clinical, Counseling & Applied Psychology	Post-master's	1
		George Fox University	Clinical, Counseling & Applied Psychology	Doctorate	21
		Pacific University	Clinical, Counseling & Applied Psychology	Doctorate	46
		Portland State University	Clinical, Counseling & Applied Psychology	Doctorate	8
University of Oregon	Clinical, Counseling & Applied Psychology	Doctorate	10		

Marriage and Family Therapists (SOC 21-1013)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
458	230	Portland State University	Marriage & Family Therapy/Counseling	Post-baccalaureate	4
		George Fox University	Marriage & Family Therapy/Counseling	Master's	22
		Lewis & Clark College	Marriage & Family Therapy/Counseling	Master's	14
		Portland State University	Marriage & Family Therapy/Counseling	Master's	
		University of Oregon	Marriage & Family Therapy/Counseling	Master's	30
		Western Seminary	Marriage & Family Therapy/Counseling	Master's	37
		George Fox University	Marriage & Family Therapy/Counseling	Post-master's	0

Mental Health Counselors (SOC 21-1014, 21-1019)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
2,140	856	George Fox University	Behavioral Sciences	Bachelor's	31
		Lewis & Clark College	Mental Health Counseling/Counselor	Master's	42
		Oregon State University	Mental Health Counseling/Counselor	Master's	
		Portland State University	Mental Health Counseling/Counselor	Master's	
		Southern Oregon University	Mental Health Counseling/Counselor	Master's	25
		George Fox University	Mental Health Counseling/Counselor	Post-master's	0
		Oregon State University	Mental Health Counseling/Counselor	Doctorate	

Substance Abuse and Behavioral Disorder Counselors (SOC 21-1011)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
1,527	660	Central Oregon Community College	Substance Abuse/Addiction Counseling	Associate	5
		Chemeketa Community College	Substance Abuse/Addiction Counseling	Associate	10
		Portland Community College	Substance Abuse/Addiction Counseling	Associate	25
		Rogue Community College	Substance Abuse/Addiction Counseling	Associate	0
		Southwestern Oregon Community College	Substance Abuse/Addiction Counseling	Associate	1
		Tillamook Bay Community College	Substance Abuse/Addiction Counseling	Associate	0
		Lewis & Clark College	Substance Abuse/Addiction Counseling	Master's	13

Rehabilitation Counselors (SOC 21-1015)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
1,397	498	Portland State University	Vocational Rehabilitation Counseling/Counselor	Master's	
		Western Oregon University	Vocational Rehabilitation Counseling/Counselor	Master's	14

Medical Records and Health Information Technicians (SOC 29-2071)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
3,014	1,413	Central Oregon Community College	Health Information/Medical Records Technology/Technician	Associate	27
		Portland Community College	Health Information/Medical Records Technology/Technician	Associate	32
		Klamath Community College	Health Information/Medical Records Administration/Administrator	Associate	6
		Mt Hood Community College	Health Information/Medical Records Administration/Administrator	Associate	0
		Oregon Institute of Technology	Health Informatics	Bachelor's	
		Oregon Health & Science University	Health Information Management	Post-baccalaureate	
		Oregon Health & Science University	Health Information Management	Master's	
		Oregon Health & Science University	Health Information Management	Doctorate	

Informaticists (Separate employment data not identified for informaticists)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
N/A	N/A	Oregon Health & Science University	Bioinformatics & Computational Biology	Master's	
		Oregon Health & Science University	Bioinformatics & Computational Biology	Doctorate	
		Pacific University	Biomathematics, Bioinformatics, & Computational Biology	Bachelor's	
		Oregon Health & Science University	Biomathematics, Bioinformatics, & Computational Biology	Post-baccalaureate	73
		Oregon Health & Science University	Biomathematics, Bioinformatics, & Computational Biology	Master's	27
		Oregon Health & Science University	Biomathematics, Bioinformatics, & Computational Biology	Doctorate	
		Oregon Health & Science University	Clinical Informatics	Post-baccalaureate	
		Oregon Health & Science University	Clinical Informatics	Master's	
		Oregon Health & Science University	Clinical Informatics	Doctorate	
		Oregon Institute of Technology	Health Informatics	Bachelor's	4
		Clackamas Community College	Medical Informatics	Associate	0
		Mt Hood Community College	Medical Informatics	Associate	3
		Portland Community College	Medical Informatics	Associate	3
		Southwestern Oregon Community College	Medical Informatics	Associate	0

Medical and Health Services Managers (SOC 11-9111)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
3,434	1,470	Pioneer Pacific College	Health/Health Care Administration/Management	Associate	77
		Northwest Christian University	Health & Medical Administrative Services, Other	Post-baccalaureate	1
		Northwest Christian University	Health & Medical Administrative Services, Other	Master's	2
		Northwest Christian University	Health Services Administration	Bachelor's	2
		Concordia University-Portland	Health/Health Care Administration/Management	Bachelor's	26
		Oregon Institute of Technology	Health/Health Care Administration/Management	Bachelor's	4
		Oregon State University	Health/Health Care Administration/Management	Bachelor's	28
		Pioneer Pacific College	Health/Health Care Administration/Management	Bachelor's	5
		Portland State University	Health/Health Care Administration/Management	Bachelor's	3
		Concordia University-Portland	Health/Health Care Administration/Management	Post-baccalaureate	0
		Oregon Health & Science University	Health/Health Care Administration/Management	Post-baccalaureate	14
		Oregon Health & Science University	Health/Health Care Administration/Management	Master's	55
		Pacific University	Health/Health Care Administration/Management	Master's	13
		Portland State University	Health/Health Care Administration/Management	Master's	28
		University of Portland	Health/Health Care Administration/Management	Master's	0
		University of Phoenix-Oregon Campus	Hospital & Health Care Facilities Administration/Management	Bachelor's	2
		University of Portland	Clinical Nurse Leader	Master's	13
		University of Portland	Nursing Administration	Master's	0
		Oregon State University	Public Health	Bachelor's	93
		Oregon State University	Public Health	Post-baccalaureate	
		Oregon Health & Science University	Public Health	Post-baccalaureate	7
		Oregon Health & Science University	Public Health	Master's	40
		Oregon State University	Public Health	Master's	51
		Oregon State University	Public Health	Doctorate	7
		Portland State University	Public Health, Other	Bachelor's	98
		Oregon Health & Science University	Business Administration & Management	Post-baccalaureate	0
		Oregon Health & Science University	Business Administration & Management	Master's	3
Pacific University	Healthcare Compliance	Post-baccalaureate	New Program		
University of Oregon	Arts Management /Arts in Healthcare Management	Master's	New Program		

Biomedical Engineers (SOC 17-2031)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
115	143	Portland Community College	Bioengineering & Biomedical Engineering	Associate	23
		Oregon State University	Bioengineering & Biomedical Engineering	Bachelor's	20
		Oregon Health & Science University	Bioengineering & Biomedical Engineering	Doctorate	1
		Oregon Health & Science University	Bioengineering & Biomedical Engineering	Master's	1

Occupational Health Specialists and Environmental and Engineers (SOC 29-9011, 17-2081)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
1,404	566	Willamette University	Environmental Health	Bachelor's	
		Oregon State University	Environmental/Environmental Health Engineering	Bachelor's	18
		Portland State University	Environmental/Environmental Health Engineering	Bachelor's	4

Medical Scientists (SOC 19-1042)

2012 Employment	Projected Job Openings 2012-2022	Institution Name	Degree/Program Title	2012 Award Level	Reported Graduates 2012
1,068	405	University of Portland	Biological & Biomedical Sciences, Other	Bachelor's	11
		University of Western States	Biological & Biomedical Sciences, Other	Bachelor's	2
		Willamette University	Environmental Health	Bachelor's	0
		Willamette University	Neurobiology & Neurosciences	Bachelor's	N/A
		Oregon Health & Science University	Neurobiology & Neurosciences	Master's	N/A
		Oregon Health & Science University	Neurobiology & Neurosciences	Doctorate	18
		Oregon State University	Health/Medical Physics	Bachelor's	7
		Oregon State University	Health/Medical Physics	Master's	21
Oregon State University	Health/Medical Physics	Doctorate	3		

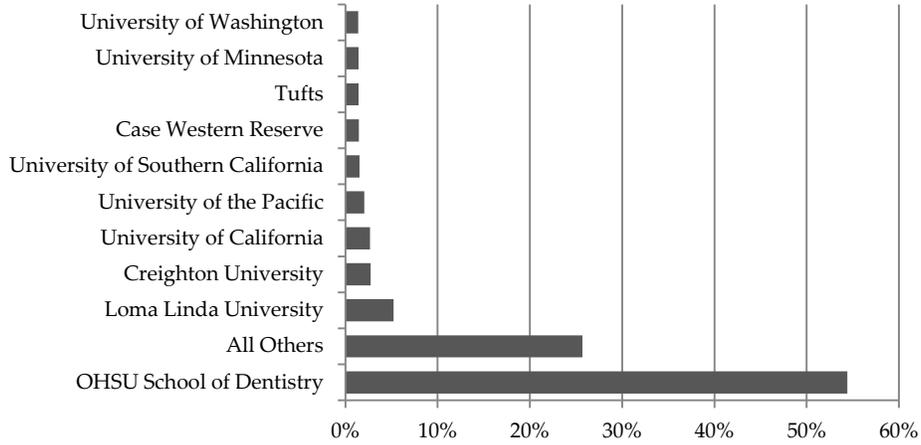
Appendix C
Educational Institutions of Selected Licensed Health Professionals in Oregon

Source: Oregon Health Care Workforce Database, 2012 and 2013

Note: School location data not available for all health professions included in the Oregon Health Care Workforce Database

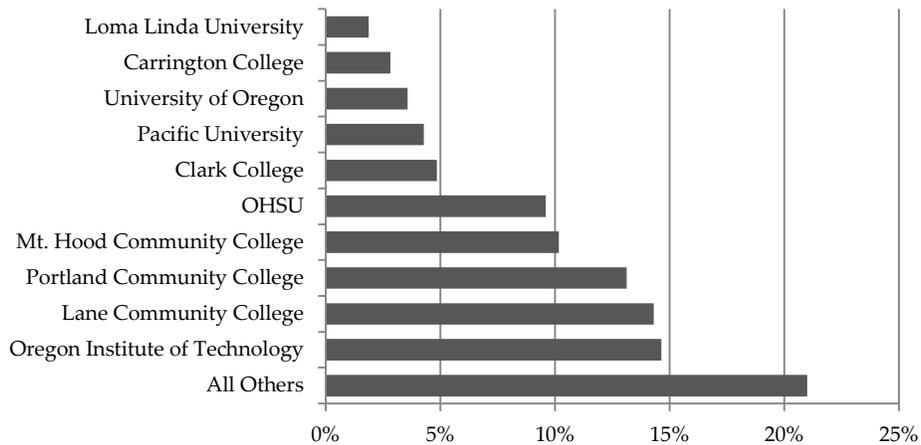
Licensed Dentists: 2012

(N=2,335)



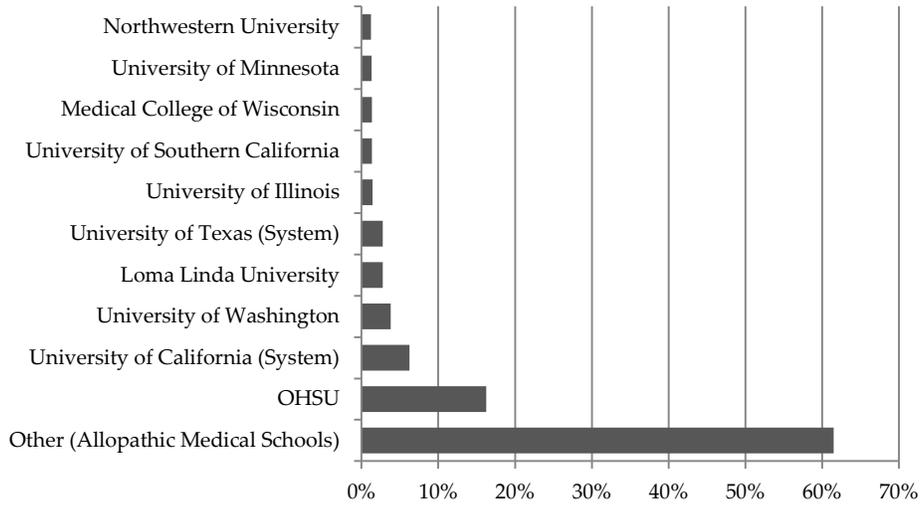
Licensed Dental Hygienists: 2013

(N=2,125)

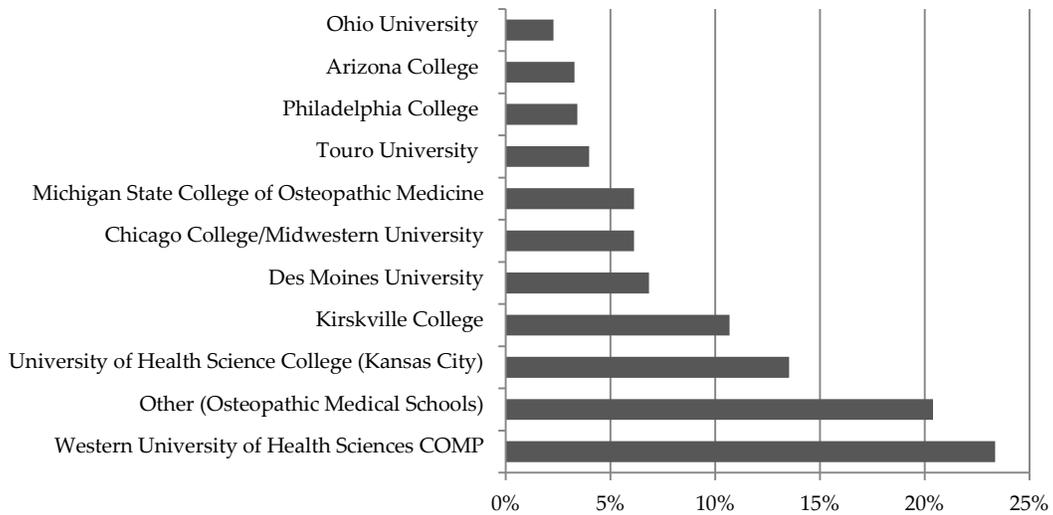


MD Physicians: 2012

(N=9,805)

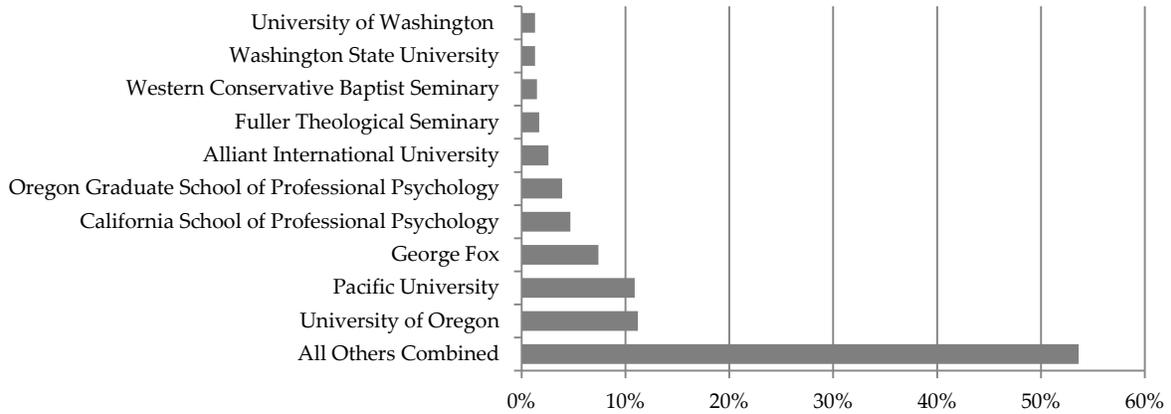


DO Physicians: 2012



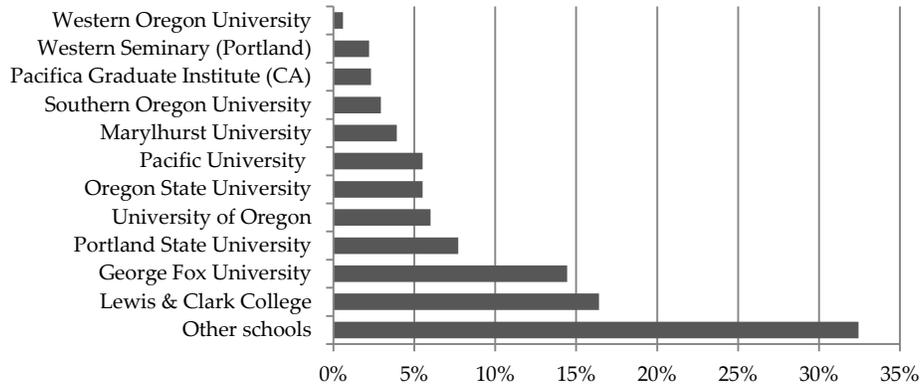
Licensed Active and Semi-Active Psychologists: 2013

(N=1502)



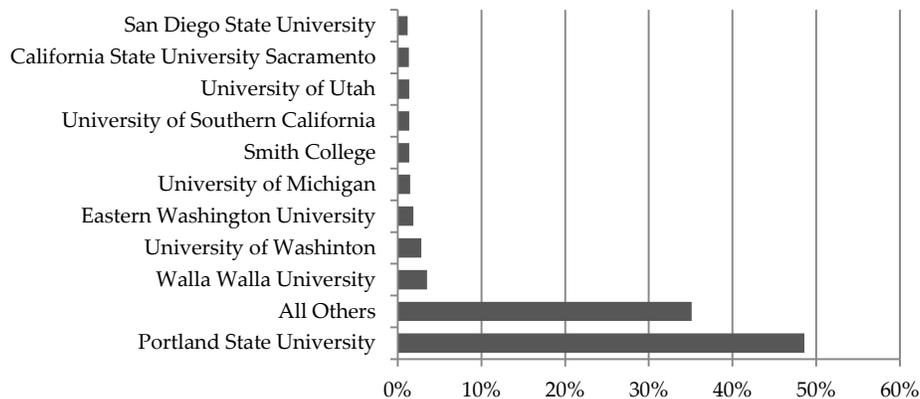
Licensed Counselors and Marriage & Family Therapists: 2013

(N=817)

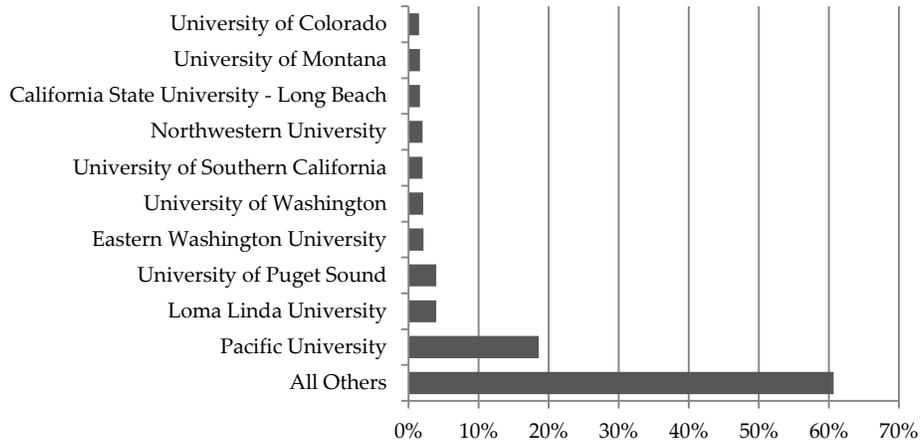


Licensed Social Workers: 2013

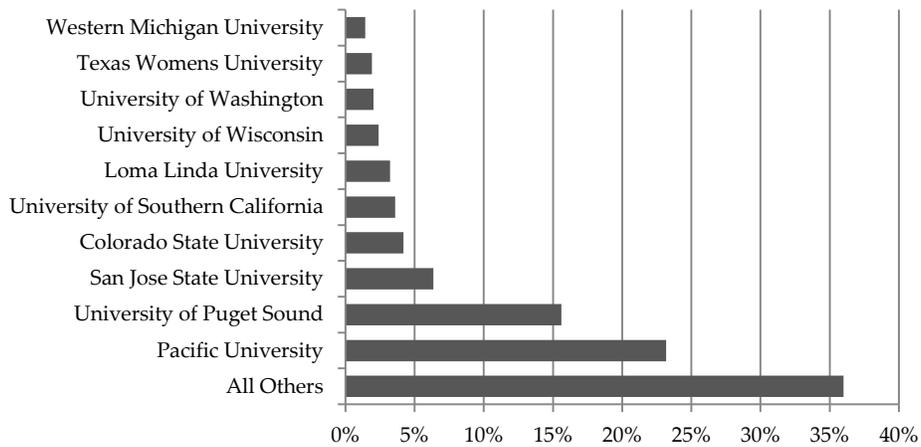
(N=4,274)



Licensed Physical Therapists: 2013
(N=2,746)



Oregon's Licensed Occupational Therapists: 2013
(N=833)



Appendix D
**Oregon Health Care Industry Employment (Ambulatory Health Care Services,
Hospitals, and Nursing and Residential Care Facilities): 2010**

Source: Oregon Employment Department (November 2013)

Notes: Excludes data independent contractors or self-employed workers

Data presented does not include health care occupational employment in other industries (e.g., government, education)

SOC	Occupation	2010 Employment
Grand Total All Health Care Industry Employment		170,811
29-1111	Registered Nurses	25,371
31-1012	Nursing Aides, Orderlies, & Attendants	12,203
43-6013	Medical Secretaries	9,663
31-1011	Home Health Aides	7,562
31-9092	Medical Assistants	6,746
39-9021	Personal & Home Care Aides	6,348
29-1060	Physicians & Surgeons	5,993
31-9091	Dental Assistants	4,254
37-2012	Maids & Housekeeping Cleaners	3,229
43-4171	Receptionists & Information Clerks	3,133
29-2021	Dental Hygienists	3,130
31-9099	Healthcare Support Workers, All Other	2,634
43-9061	Office Clerks, General	2,454
43-3021	Billing & Posting Clerks	2,327
29-2061	Licensed Practical Nurses	2,278
21-1093	Social & Human Service Assistants	2,218
11-9111	Medical & Health Services Managers	2,202
29-2034	Radiologic, CAT, & MRI Technologists & Technicians	2,169
29-2071	Medical Records & Health Information Technicians	2,113
35-2012	Cooks, Institution & Cafeteria	2,042
29-1123	Physical Therapists	2,026
43-4111	Interviewers, Except Eligibility & Loan	1,820
43-3031	Bookkeeping, Accounting, & Auditing Clerks	1,785
29-2011	Medical & Clinical Laboratory Technologists	1,751
43-1011	Supervisors & Managers of Office & Administrative Support Workers	1,673
35-3041	Food Servers, Non-restaurant	1,508
29-2041	Emergency Medical Technicians & Paramedics	1,354
37-2011	Janitors & Cleaners	1,265
21-1011	Substance Abuse & Behavioral Disorder Counselors	1,191
49-9042	Maintenance & Repair Workers, General	1,152
29-2099	Health Technologists & Technicians, All Other	1,149
35-2021	Food Preparation Workers	1,092
43-6014	Secretaries, Except Legal, Medical, & Executive	1,090
31-9094	Medical Transcriptionists	1,083
29-1021	Dentists, General	1,045
43-6011	Executive Secretaries & Administrative Assistants	1,007
21-1014	Mental Health Counselors	987
11-1021	General & Operations Managers	969
29-1126	Respiratory Therapists	932
29-2052	Pharmacy Technicians	917
29-2012	Medical & Clinical Laboratory Technicians	900
31-9093	Medical Equipment Preparers	899
29-1051	Pharmacists	873
35-3021	Combined Food Preparation & Serving Workers, Including Fast Food	871

SOC	Occupation	2010 Employment
21-1022	Medical & Public Health Social Workers	833
29-2055	Surgical Technologists	823
21-1023	Mental Health & Substance Abuse Social Workers	809
13-1199	Business Operations Specialists, All Other	802
39-9032	Recreation Workers	748
31-9011	Massage Therapists	733
43-3011	Bill & Account Collectors	721
43-9199	Office & Administrative Support Workers, All Other	717
29-1122	Occupational Therapists	689
29-1071	Physician Assistants	676
31-2022	Physical Therapist Aides	645
31-1013	Psychiatric Aides	606
29-2081	Opticians, Dispensing	576
43-5081	Stock Clerks & Order Fillers	566
43-4051	Customer Service Representatives	560
29-2031	Cardiovascular Technologists & Technicians	536
31-2021	Physical Therapist Assistants	530
11-9151	Social & Community Service Managers	523
43-4071	File Clerks	520
39-1021	Supervisors & Managers of Personal Service Workers	519
35-1012	Supervisors & Managers of Food Preparation & Serving Workers	518
21-1021	Child, Family, & School Social Workers	507
35-9021	Dishwashers	487
29-2032	Diagnostic Medical Sonographers & Ultrasound Technologists	432
19-3031	Clinical, Counseling, & School Psychologists	425
51-6011	Laundry & Dry-Cleaning Workers	417
21-1015	Rehabilitation Counselors	408
43-5061	Production, Planning, & Expediting Clerks	404
33-9032	Security Guards	404
29-1011	Chiropractors	400
43-5021	Couriers & Messengers	394
43-2011	Switchboard Operators, Including Answering Service	389
29-9099	Healthcare Practitioner & Technical Workers, All Other	386
29-2053	Psychiatric Technicians	380
11-9199	Managers, All Other	375
13-2011	Accountants & Auditors	351
29-1127	Speech & Language Pathologists	341
29-1041	Optometrists	340
35-9011	Dining Room & Cafeteria Attendants & Bartender Helpers	340
29-1031	Dietitians & Nutritionists	337
29-1029	Dentists, All Other	293
35-9099	Food Preparation & Serving Workers, All Other	289
29-1199	Health Diagnosing & Treating Practitioners, All Other	276
21-1091	Health Educators	258
53-3041	Taxi Drivers & Chauffeurs	258
15-1051	Computer Systems Analysts	249
13-1079	Human Resources, Training, & Labor Relations Specialists, All Other	248
21-2011	Clergy	244
15-1041	Computer Support Specialists	241
37-1011	Supervisors & Managers of Housekeeping & Janitorial Workers	236
13-1073	Training & Development Specialists	228
15-1099	Computer Specialists, All Other	222
41-3099	Sales Representatives, Services, All Other	220

SOC	Occupation	2010 Employment
11-3011	Administrative Services Managers	219
37-3011	Landscaping & Groundskeeping Workers	213
39-9011	Child Care Workers	202
21-1013	Marriage & Family Therapists	200
51-9081	Dental Laboratory Technicians	195
29-2033	Nuclear Medicine Technologists	188
43-4161	Human Resources Assistants, Except Payroll & Timekeeping	188
49-9062	Medical Equipment Repairers	180
19-1042	Medical Scientists, Except Epidemiologists	177
13-1023	Purchasing Agents, Except Wholesale, Retail, & Farm Products	166
11-3031	Financial Managers	163
21-1029	Social Workers, All Other	162
35-3031	Waiters & Waitresses	160
29-1124	Radiation Therapists	158
39-9041	Residential Advisors	158
43-9021	Data Entry Keyers	157
43-3051	Payroll & Timekeeping Clerks	154
35-3022	Counter Attendants in Cafeterias, Food Concessions, & Coffee Shops	152
29-1121	Audiologists	137
21-1019	Counselors, All Other	134
29-2051	Dietetic Technicians	133
29-1125	Recreational Therapists	131
15-1071	Network & Computer Systems Administrators	123
13-1071	Employment, Recruitment, & Placement Specialists	119
31-2011	Occupational Therapist Assistants	114
39-9031	Fitness Trainers & Aerobics Instructors	107
11-3021	Computer & Information Systems Managers	100
29-1129	Therapists, All Other	99
53-2012	Commercial Pilots, Except Airline Pilots	97
41-2011	Cashiers	97
41-9099	Sales & Related Workers, All Other	96
11-9051	Food Service Managers	94
21-1099	Community & Social Service Specialists, All Other	88
27-3091	Interpreters & Translators	87
43-4199	Information & Record Clerks, All Other	86
13-1041	Compliance Officers, Except Agriculture, Construction, Health & Safety, & Transportation	85
49-1011	Supervisors & Managers of Mechanics, Installers, & Repairers	85
19-4099	Life, Physical, & Social Science Technicians, All Other	83
27-3031	Public Relations Specialists	83
11-1011	Chief Executives	83
11-2031	Public Relations Managers	83
11-3049	Human Resources Managers, All Other	81
51-9199	Production Workers, All Other	78
11-9141	Property, Real Estate, & Community Association Managers	77
51-8021	Stationary Engineers & Boiler Operators	77
25-9041	Teacher Assistants	73
43-5071	Shipping, Receiving, & Traffic Clerks	71
35-2014	Cooks, Restaurant	67
13-1111	Management Analysts	66
29-9091	Athletic Trainers	65
43-5032	Dispatchers, Except Police, Fire, & Ambulance	64
13-2099	Financial Specialists, All Other	64
43-5031	Police, Fire, & Ambulance Dispatchers	63

SOC	Occupation	2010 Employment
29-1081	Podiatrists	62
51-9083	Ophthalmic Laboratory Technicians	58
39-9099	Personal Care & Service Workers, All Other	57
11-2021	Marketing Managers	57
13-2071	Loan Counselors	57
15-1081	Network Systems & Data Communications Analysts	54
35-1011	Chefs & Head Cooks	53
49-9021	Heating, Air Conditioning, & Refrigeration Mechanics & Installers	52
13-1072	Compensation, Benefits, & Job Analysis Specialists	48
43-4061	Eligibility Interviewers, Government Programs	47
15-1061	Database Administrators	47
15-2041	Statisticians	47
53-7062	Laborers & Freight, Stock, & Material Movers, Hand	45
43-9041	Insurance Claims & Policy Processing Clerks	44
25-2011	Preschool Teachers, Except Special Education	44
11-9081	Lodging Managers	44
13-2031	Budget Analysts	44
43-9071	Office Machine Operators, Except Computer	42
25-3099	Teachers & Instructors, All Other	42
39-5094	Skin Care Specialists	40
43-9051	Mail Clerks & Mail Machine Operators, Except Postal Service	37
47-2141	Painters, Construction & Maintenance	37
39-5012	Hairdressers, Hairstylists, & Cosmetologists	36
21-1012	Educational, Vocational, & School Counselors	35
41-2031	Retail Salespersons	35
11-3061	Purchasing Managers	34
47-2031	Carpenters	34
11-9021	Construction Managers	33
49-3011	Aircraft Mechanics & Service Technicians	33
43-3061	Purchasing & Procurement Clerks	32
19-3021	Market Research Analysts	31
47-2111	Electricians	31
53-6021	Parking Lot Attendants	29
43-4151	Order Clerks	28
15-1031	Computer Software Engineers, Applications	28
53-3022	Bus Drivers, School	27
19-2012	Physicists	26
41-4011	Wholesale & Manufacturing Sales Representatives, Technical & Scientific Products	25
29-9011	Occupational Health & Safety Specialists	24
53-3011	Ambulance Drivers & Attendants, Except Emergency Medical Technicians	24
41-1011	Supervisors & Managers of Retail Sales Workers	24
13-1031	Claims Investigators, Examiners, & Adjusters	22
29-2091	Orthotists & Prosthetists	21
43-9011	Computer Operators	21
33-1099	Supervisors & Managers, Protective Service Workers, All Other	21
25-4021	Librarians	21
25-1199	Postsecondary Teachers, Except Graduate Teaching Assistants	19
25-3021	Self-Enrichment Education Teachers	19
11-9033	Postsecondary School Administrators	18
13-1022	Wholesale & Retail Buyers, Except Farm Products	18
51-9082	Medical Appliance Technicians	18
53-3032	Truck Drivers, Heavy & Tractor-Trailer	18
25-2042	Special Education Teachers, Middle School	17

SOC	Occupation	2010 Employment
11-3042	Training & Development Managers	17
11-3071	Transportation, Storage, & Distribution Managers	17
53-1031	Supervisors & Managers of Transportation & Material-Moving Machine & Vehicle Operators	17
53-3033	Truck Drivers, Light or Delivery Services	17
35-2015	Cooks, Short Order	16
25-2031	Secondary School Teachers, Except Special & Vocational Education	16
25-9031	Instructional Coordinators	16
35-9031	Hosts & Hostesses in Restaurants, Lounges, & Coffee Shops	15
51-1011	Supervisors & Managers of Production & Operating Workers	15
43-9111	Statistical Assistants	14
19-1022	Microbiologists	14
15-1021	Computer Programmers	13
19-4021	Biological Technicians	13
41-9041	Telemarketers	13
43-9081	Proofreaders & Copy Markers	12
17-2031	Biomedical Engineers	12
19-3039	Psychologists, All Other	12
25-3011	Adult Literacy, Remedial Education, & GED Teachers & Instructors	12
27-4031	Camera Operators, Television, Video, & Motion Picture	12
31-2012	Occupational Therapist Aides	11
27-1024	Graphic Designers	11
27-4011	Audio & Video Equipment Technicians	11
13-1061	Emergency Management Specialists	11
13-1081	Logisticians	11
49-9099	Installation, Maintenance, & Repair Workers, All Other	11
53-3021	Bus Drivers, Transit & Intercity	11
11-3041	Compensation & Benefits Managers	10
11-9039	Education Administrators, All Other	10
53-3099	Motor Vehicle Operators, All Other	10
45-2092	Farmworkers & Laborers for Crops, Nurseries, & Greenhouses	10
17-2199	Engineers, All Other	9
17-3023	Electrical & Electronic Engineering Technicians	9
25-2041	Special Education Teachers, Preschool, Kindergarten, & Elementary School	9
43-3071	Tellers	8
43-4121	Library Assistants, Clerical	8
37-2019	Building Cleaning Workers, All Other	8
11-2022	Sales Managers	8
11-9031	Preschool & Child Care Administrators	8
11-9121	Natural Sciences Managers	8
49-9098	Installation, Maintenance, & Repair Worker's Helpers	8
51-3011	Bakers	8
53-2022	Airfield Operations Specialists	8
41-2021	Counter & Rental Clerks	8
27-2042	Musicians & Singers	7
13-1121	Meeting & Convention Planners	7
49-2094	Electrical & Electronics Repairers, Commercial & Industrial Equipment	7
49-3023	Automotive Service Technicians & Mechanics	7
33-1021	Supervisors & Managers of Fire Fighting & Prevention Workers	6
27-3043	Writers & Authors	6
27-3099	Media & Communication Workers, All Other	6

NOTE: Data on occupations with five or fewer employees suppressed by the Oregon Employment Department for confidentiality.

Appendix E

Inventory of Health Care Industry-Related Degrees Offered at Oregon's Public Universities (2012)

(Source: U.S. Department of Education, National Center for Education Statistics, Integrated Post-Secondary Education Data System, December 2013)

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
52.02	Eastern Oregon University	Business Administration & Management	Master's	29
52.03	Eastern Oregon University	Business Administration, Management & Operations, Other	Associate	8
52.03	Eastern Oregon University	Business Administration, Management & Operations, Other	Bachelor's	195
44.04	Eastern Oregon University	Public Administration	Bachelor's	1
14.05	Oregon Health & Science University	Bioengineering & Biomedical Engineering	Master's	1
14.05	Oregon Health & Science University	Bioengineering & Biomedical Engineering	Doctorate	1
51.271	Oregon Health & Science University	Bioinformatics & Computational Biology	Master's	
51.271	Oregon Health & Science University	Bioinformatics & Computational Biology	Doctorate	
26.11	Oregon Health & Science University	Biomathematics, Bioinformatics, & Computational Biology	Postbaccalaureate	73
26.11	Oregon Health & Science University	Biomathematics, Bioinformatics, & Computational Biology	Master's	27
26.11	Oregon Health & Science University	Biomathematics, Bioinformatics, & Computational Biology	Doctorate	0
52.02	Oregon Health & Science University	Business Administration & Management	Postbaccalaureate	0
52.02	Oregon Health & Science University	Business Administration & Management	Master's	3
51.271	Oregon Health & Science University	Clinical Informatics	Postbaccalaureate	
51.271	Oregon Health & Science University	Clinical Informatics	Master's	
51.271	Oregon Health & Science University	Clinical Informatics	Doctorate	
51.31	Oregon Health & Science University	Clinical Nutrition/Nutritionist	Master's	3
51.04	Oregon Health & Science University	Dentistry	Doctorate	68
51.31	Oregon Health & Science University	Dietetics/Dietitian	Postbaccalaureate	21
51.31	Oregon Health & Science University	Dietetics/Dietitian	Master's	0
51.051	Oregon Health & Science University	Endodontics/Endodontology	Post-master's	3
51.381	Oregon Health & Science University	Family Practice Nurse/Nursing	Master's	17
51.381	Oregon Health & Science University	Family Practice Nurse/Nursing	Post-master's	0
51.381	Oregon Health & Science University	Family Practice Nurse/Nursing	Doctorate	4
51.382	Oregon Health & Science University	Geriatric Nurse/Nursing	Post-master's	0
51.271	Oregon Health & Science University	Health Information Management	Postbaccalaureate	

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
51.271	Oregon Health & Science University	Health Information Management	Master's	
51.271	Oregon Health & Science University	Health Information Management	Doctorate	
52	Oregon Health & Science University	Health Professions & Related Clinical Sciences, Other	Postbaccalaureate	13
52	Oregon Health & Science University	Health Professions & Related Clinical Sciences, Other	Master's	20
51.07	Oregon Health & Science University	Health/Health Care Administration/Management	Postbaccalaureate	14
51.07	Oregon Health & Science University	Health/Health Care Administration/Management	Master's	55
51.091	Oregon Health & Science University	Medical Radiologic Technology/Science - Radiation Therapist	Bachelor's	9
51.12	Oregon Health & Science University	Medicine	Doctorate	122
26.15	Oregon Health & Science University	Neurobiology & Neurosciences	Master's	0
26.15	Oregon Health & Science University	Neurobiology & Neurosciences	Doctorate	18
51.38	Oregon Health & Science University	Nurse Anesthetist	Master's	12
51.381	Oregon Health & Science University	Nurse Midwife/Nursing Midwifery	Master's	9
51.381	Oregon Health & Science University	Nurse Midwife/Nursing Midwifery	Post-master's	0
51.382	Oregon Health & Science University	Nursing Education	Master's	3
51.382	Oregon Health & Science University	Nursing Practice	Doctorate	6
51.051	Oregon Health & Science University	Orthodontics/Orthodontology	Master's	4
51.051	Oregon Health & Science University	Orthodontics/Orthodontology	Post-master's	4
51.051	Oregon Health & Science University	Periodontics/Periodontology	Master's	2
51.051	Oregon Health & Science University	Periodontics/Periodontology	Post-master's	3
26.1	Oregon Health & Science University	Pharmacology & Toxicology	Doctorate	3
51.091	Oregon Health & Science University	Physician Assistant	Master's	35
51.381	Oregon Health & Science University	Psychiatric/Mental Health Nurse/Nursing	Master's	12
51.381	Oregon Health & Science University	Psychiatric/Mental Health Nurse/Nursing	Post-master's	1
51.381	Oregon Health & Science University	Psychiatric/Mental Health Nurse/Nursing	Doctorate	1
51.22	Oregon Health & Science University	Public Health	Postbaccalaureate	7
51.22	Oregon Health & Science University	Public Health	Master's	40
51.38	Oregon Health & Science University	Registered Nursing/Registered Nurse	Bachelor's	296
51.38	Oregon Health & Science University	Registered Nursing/Registered Nurse	Doctorate	4
52.03	Oregon Institute of Technology	Accounting	Bachelor's	9
51.101	Oregon Institute of Technology	Clinical Laboratory Science/Medical Technology/Technologist	Bachelor's	35

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
42.28	Oregon Institute of Technology	Clinical, Counseling & Applied Psychology	Bachelor's	38
51.06	Oregon Institute of Technology	Dental Hygiene/Hygienist	Associate	27
51.06	Oregon Institute of Technology	Dental Hygiene/Hygienist	Bachelor's	54
51.091	Oregon Institute of Technology	Diagnostic Medical Sonography/Sonographer & Ultrasound Technician	Bachelor's	82
51.091	Oregon Institute of Technology	Echocardiography	Bachelor's	
51.09	Oregon Institute of Technology	Emergency Medical Technology/Technician (EMT Paramedic)	Associate	17
51.071	Oregon Institute of Technology	Health Informatics	Bachelor's	4
51.07	Oregon Institute of Technology	Health/Health Care Administration/Management	Bachelor's	4
51.12	Oregon Institute of Technology	Health/Medical Preparatory Programs, Other	Bachelor's	6
52.12	Oregon Institute of Technology	Management Information Systems	Bachelor's	4
52.14	Oregon Institute of Technology	Marketing/Marketing Management	Bachelor's	8
51.091	Oregon Institute of Technology	Nuclear Medical Technology/Technologist	Bachelor's	16
52.021	Oregon Institute of Technology	Operations Management & Supervision	Bachelor's	14
51.092	Oregon Institute of Technology	Polysomnography	Associate	4
51.091	Oregon Institute of Technology	Radiologic Technology/Science - Radiographer	Bachelor's	50
51.091	Oregon Institute of Technology	Respiratory Care Therapy/Therapist	Bachelor's	21
51.091	Oregon Institute of Technology	Vascular Technology	Bachelor's	
52.03	Oregon State University	Accounting	Bachelor's	73
52.03	Oregon State University	Accounting	Postbaccalaureate	9
51.091	Oregon State University	Athletic Training/Trainer	Bachelor's	14
14.05	Oregon State University	Bioengineering & Biomedical Engineering	Bachelor's	20
26.12	Oregon State University	Biotechnology	Bachelor's	13
26.12	Oregon State University	Biotechnology	Master's	3
52.02	Oregon State University	Business Administration & Management	Bachelor's	199
52.03	Oregon State University	Business Administration, Management & Operations, Other	Postbaccalaureate	3
52.02	Oregon State University	Business Administration & Management	Master's	49
14.14	Oregon State University	Environmental/Environmental Health Engineering	Bachelor's	18
52.08	Oregon State University	Finance	Bachelor's	88
19.05	Oregon State University	Foods, Nutrition, & Related Services	Bachelor's	41
19.05	Oregon State University	Foods, Nutrition, & Related Services	Master's	3

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
30.11	Oregon State University	Gerontology	Postbaccalaureate	2
51.07	Oregon State University	Health/Health Care Administration/Management	Bachelor's	28
51.221	Oregon State University	Health/Medical Physics	Bachelor's	7
51.221	Oregon State University	Health/Medical Physics	Master's	21
51.221	Oregon State University	Health/Medical Physics	Doctorate	3
52.12	Oregon State University	Management Information Systems	Bachelor's	43
52.14	Oregon State University	Marketing/Marketing Management	Bachelor's	95
52.021	Oregon State University	Operations Management & Supervision	Bachelor's	68
26.1	Oregon State University	Pharmacology & Toxicology	Master's	1
26.1	Oregon State University	Pharmacology & Toxicology	Doctorate	2
51.2	Oregon State University	Pharmacy	Doctorate	86
51.21	Oregon State University	Pharmacy, Pharmaceutical Sciences, & Administration, Other	Master's	1
51.21	Oregon State University	Pharmacy, Pharmaceutical Sciences, & Administration, Other	Doctorate	2
51.22	Oregon State University	Public Health	Bachelor's	93
51.22	Oregon State University	Public Health	Master's	51
51.22	Oregon State University	Public Health	Doctorate	7
51.221	Oregon State University	Public Health Education & Promotion	Bachelor's	3
52.03	Portland State University	Accounting	Bachelor's	156
52.03	Portland State University	Accounting	Postbaccalaureate	45
51.02	Portland State University	Audiology/Audiologist	Bachelor's	65
51.02	Portland State University	Audiology/Audiologist	Master's	31
52.02	Portland State University	Business Administration & Management	Bachelor's	205
52.02	Portland State University	Business Administration & Management	Master's	101
42.28	Portland State University	Clinical, Counseling & Applied Psychology	Doctorate	8
51.221	Portland State University	Community Health & Preventive Medicine	Bachelor's	145
11.1	Portland State University	Computer/Information Technology Administration & Management	Postbaccalaureate	1
14.14	Portland State University	Environmental/Environmental Health Engineering	Bachelor's	4
52.08	Portland State University	Finance	Bachelor's	135
52.08	Portland State University	Finance	Master's	57
19.05	Portland State University	Foods, Nutrition, & Related Services	Postbaccalaureate	16

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
30.11	Portland State University	Gerontology	Postbaccalaureate	10
52	Portland State University	Health Professions & Related Clinical Sciences, Other	Master's	1
51.07	Portland State University	Health/Health Care Administration/Management	Bachelor's	3
51.07	Portland State University	Health/Health Care Administration/Management	Master's	28
52.1	Portland State University	Human Resources Management/Personnel Administration	Bachelor's	132
52.02	Portland State University	Logistics, Materials, & Supply Chain Management	Bachelor's	78
52.12	Portland State University	Management Information Systems	Bachelor's	43
52.14	Portland State University	Marketing/Marketing Management	Bachelor's	153
51.151	Portland State University	Marriage & Family Therapy/Counseling	Postbaccalaureate	4
44.04	Portland State University	Public Administration	Postbaccalaureate	4
44.04	Portland State University	Public Administration	Master's	92
51.221	Portland State University	Public Health Education & Promotion	Master's	26
51.23	Portland State University	Public Health, Other	Bachelor's	98
44.07	Portland State University	Social Work	Bachelor's	48
44.07	Portland State University	Social Work	Master's	183
44.07	Portland State University	Social Work	Doctorate	5
51.02	Portland State University	Speech & Hearing Sciences	Bachelor's	
51.02	Portland State University	Speech & Hearing Sciences	Postbaccalaureate	
51.02	Portland State University	Speech & Hearing Sciences	Master's	
14.27	Portland State University	Systems Engineering	Postbaccalaureate	3
14.27	Portland State University	Systems Engineering	Master's	4
30.06	Portland State University	Systems Science & Theory	Master's	7
30.06	Portland State University	Systems Science & Theory	Doctorate	4
52.03	Southern Oregon University	Accounting	Postbaccalaureate	13
52.02	Southern Oregon University	Business Administration & Management	Bachelor's	118
52.02	Southern Oregon University	Business Administration & Management	Master's	52
52.021	Southern Oregon University	E-Commerce/Electronic Commerce	Postbaccalaureate	13
52.08	Southern Oregon University	Finance	Postbaccalaureate	17
52.1	Southern Oregon University	Human Resources Management/Personnel Administration	Postbaccalaureate	14
52.12	Southern Oregon University	Management Information Systems	Postbaccalaureate	16

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
51.151	Southern Oregon University	Mental Health Counseling/Counselor	Master's	25
51.11	Southern Oregon University	Pre-Medicine/Pre-Medical Studies	Bachelor's	2
52.03	University of Oregon	Accounting	Bachelor's	134
52.03	University of Oregon	Accounting	Master's	27
52.03	University of Oregon	Accounting	Doctorate	1
	University of Oregon	Arts Management /Arts in Healthcare Management	Master's	
52.02	University of Oregon	Business Administration & Management	Master's	96
52.02	University of Oregon	Business Administration & Management	Doctorate	2
42.28	University of Oregon	Clinical, Counseling & Applied Psychology	Postbaccalaureate	4
42.28	University of Oregon	Clinical, Counseling & Applied Psychology	Master's	3
42.28	University of Oregon	Clinical, Counseling & Applied Psychology	Doctorate	10
51.02	University of Oregon	Communication Sciences & Disorders	Bachelor's	40
51.02	University of Oregon	Communication Sciences & Disorders	Postbaccalaureate	23
51.02	University of Oregon	Communication Sciences & Disorders	Master's	24
52.08	University of Oregon	Finance	Doctorate	3
44	University of Oregon	Human Services	Bachelor's	90
22.01	University of Oregon	Law	Doctorate	161
52.12	University of Oregon	Management Information Systems	Master's	13
51.151	University of Oregon	Marriage & Family Therapy/Counseling	Master's	30
52.021	University of Oregon	Non-Profit/Public/Organizational Management	Postbaccalaureate	23
44.04	University of Oregon	Public Administration	Bachelor's	47
44.04	University of Oregon	Public Administration	Master's	15
52.12	Western Oregon University	Management Information Systems	Master's	24
51.221	Western Oregon University	Public Health Education & Promotion	Bachelor's	68
51.231	Western Oregon University	Vocational Rehabilitation Counseling/Counselor	Master's	14

Appendix F

Inventory of Health Care Industry-Related Degrees at the Associate Level or Higher from All Oregon Public and Private Higher Education Institutions by Degree Program (2012)

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Post-Secondary Education Data System, December 2013

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
52.03	Blue Mountain Community College	Accounting	Associate	3
52.03	Chemeketa Community College	Accounting	Associate	22
52.03	Clackamas Community College	Accounting	Associate	9
52.03	Clatsop Community College	Accounting	Associate	2
52.03	Pioneer Pacific College	Accounting	Associate	29
52.03	Tillamook Bay Community College	Accounting	Associate	0
52.03	Linfield College-Adult Degree Program	Accounting	Bachelor's	43
52.03	Linfield College-McMinnville Campus	Accounting	Bachelor's	12
52.03	Northwest Christian University	Accounting	Bachelor's	7
52.03	Oregon Institute of Technology	Accounting	Bachelor's	9
52.03	Oregon State University	Accounting	Bachelor's	73
52.03	Portland State University	Accounting	Bachelor's	156
52.03	University of Oregon	Accounting	Bachelor's	134
52.03	University of Portland	Accounting	Bachelor's	31
52.03	Warner Pacific College	Accounting	Bachelor's	1
52.03	Warner Pacific College Adult Degree Program	Accounting	Bachelor's	1
52.03	University of Oregon	Accounting	Doctorate	1
52.03	University of Oregon	Accounting	Master's	27
52.03	Linfield College-Adult Degree Program	Accounting	Postbaccalaureate	24
52.03	Oregon State University	Accounting	Postbaccalaureate	9
52.03	Portland State University	Accounting	Postbaccalaureate	45
52.03	Southern Oregon University	Accounting	Postbaccalaureate	13
52.031	Heald College-Portland	Accounting & Business/Management	Associate	19
52.031	George Fox University	Accounting & Business/Management	Bachelor's	15
52.031	University of Phoenix-Oregon Campus	Accounting & Business/Management	Bachelor's	21
52.03	DeVry University Keller Grad School of Mgmt	Accounting & Finance	Master's	3
52.03	DeVry University Keller Grad School of Mgmt	Accounting & Finance	Postbaccalaureate	5
52.04	Northwest Christian University	Accounting & Related Services, Other	Postbaccalaureate	1
52.03	Chemeketa Community College	Accounting Technology/Technician & Bookkeeping	Associate	11

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
52.03	Columbia Gorge Community College	Accounting Technology/Technician & Bookkeeping	Associate	4
52.03	Everest College-Portland	Accounting Technology/Technician & Bookkeeping	Associate	10
52.03	Klamath Community College	Accounting Technology/Technician & Bookkeeping	Associate	27
52.03	Lane Community College	Accounting Technology/Technician & Bookkeeping	Associate	27
52.03	Linn-Benton Community College	Accounting Technology/Technician & Bookkeeping	Associate	11
52.03	Mt Hood Community College	Accounting Technology/Technician & Bookkeeping	Associate	19
52.03	Portland Community College	Accounting Technology/Technician & Bookkeeping	Associate	69
52.03	Rogue Community College	Accounting Technology/Technician & Bookkeeping	Associate	10
52.03	Southwestern Oregon Community College	Accounting Technology/Technician & Bookkeeping	Associate	3
52.03	Tillamook Bay Community College	Accounting Technology/Technician & Bookkeeping	Associate	2
52.03	Umpqua Community College	Accounting Technology/Technician & Bookkeeping	Associate	14
51.33	Oregon College of Oriental Medicine	Acupuncture & Oriental Medicine	Doctorate	9
51.33	National College of Natural Medicine	Acupuncture & Oriental Medicine	Master's	28
51.33	Oregon College of Oriental Medicine	Acupuncture & Oriental Medicine	Master's	61
52.04	Blue Mountain Community College	Administrative Assistant & Secretarial Science	Associate	6
52.04	Chemeketa Community College	Administrative Assistant & Secretarial Science	Associate	11
52.04	Clackamas Community College	Administrative Assistant & Secretarial Science	Associate	6
52.04	Columbia Gorge Community College	Administrative Assistant & Secretarial Science	Associate	2
52.04	Klamath Community College	Administrative Assistant & Secretarial Science	Associate	0
52.04	Lane Community College	Administrative Assistant & Secretarial Science	Associate	12
52.04	Linn-Benton Community College	Administrative Assistant & Secretarial Science	Associate	7
52.04	Portland Community College	Administrative Assistant & Secretarial Science	Associate	11
52.04	Southwestern Oregon Community College	Administrative Assistant & Secretarial Science	Associate	1
52.04	Tillamook Bay Community College	Administrative Assistant & Secretarial Science	Associate	0
51.33	American College of Healthcare Sciences	Alternative & Complementary Medicine & Medical Systems	Associate	8
51.33	American College of Healthcare Sciences	Alternative & Complementary Medicine & Medical Systems	Master's	1
51.33	American College of Healthcare Sciences	Alternative & Complementary Medicine & Medical Systems	Post baccalaureate	4
51.23	Marylhurst University	Art Therapy/Therapist	Master's	14
51.23	Marylhurst University	Art Therapy/Therapist	Post-master's	0
	University of Oregon	Arts Management /Arts in Healthcare Management	Master's	New Program
51.091	Southwestern Oregon Community College	Athletic Training/Trainer	Associate	0
51.091	Treasure Valley Community College	Athletic Training/Trainer	Associate	1
51.091	George Fox University	Athletic Training/Trainer	Bachelor's	8
51.091	Linfield College-McMinnville Campus	Athletic Training/Trainer	Bachelor's	6
51.091	Oregon State University	Athletic Training/Trainer	Bachelor's	14

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
51.02	Portland State University	Audiology/Audiologist	Bachelor's	65
51.02	Portland State University	Audiology/Audiologist	Master's	31
30.17	George Fox University	Behavioral Sciences	Bachelor's	31
14.05	Portland Community College	Bioengineering & Biomedical Engineering	Associate	23
14.05	Oregon State University	Bioengineering & Biomedical Engineering	Bachelor's	20
14.05	Oregon Health & Science University	Bioengineering & Biomedical Engineering	Doctorate	1
14.05	Oregon Health & Science University	Bioengineering & Biomedical Engineering	Master's	1
51.271	Oregon Health & Science University	Bioinformatics & Computational Biology	Doctorate	
51.271	Oregon Health & Science University	Bioinformatics & Computational Biology	Master's	
26.99	University of Portland	Biological & Biomedical Sciences, Other	Bachelor's	11
26.99	University of Western States	Biological & Biomedical Sciences, Other	Bachelor's	2
26.11	Pacific University	Biomathematics, Bioinformatics, & Computational Biology	Bachelor's	0
26.11	Oregon Health & Science University	Biomathematics, Bioinformatics, & Computational Biology	Doctorate	0
26.11	Oregon Health & Science University	Biomathematics, Bioinformatics, & Computational Biology	Master's	27
26.11	Oregon Health & Science University	Biomathematics, Bioinformatics, & Computational Biology	Postbaccalaureate	73
26.12	Portland Community College	Biotechnology	Associate	3
26.12	Oregon State University	Biotechnology	Bachelor's	13
26.12	Oregon State University	Biotechnology	Master's	3
52.02	Blue Mountain Community College	Business Administration & Management	Associate	10
52.02	Central Oregon Community College	Business Administration & Management	Associate	38
52.02	Chemeketa Community College	Business Administration & Management	Associate	14
52.02	Clackamas Community College	Business Administration & Management	Associate	40
52.02	Clatsop Community College	Business Administration & Management	Associate	4
52.02	Columbia Gorge Community College	Business Administration & Management	Associate	2
52.02	Concordia University-Portland	Business Administration & Management	Associate	0
52.02	Corban University	Business Administration & Management	Associate	0
52.02	Klamath Community College	Business Administration & Management	Associate	10
52.02	Linn-Benton Community College	Business Administration & Management	Associate	37
52.02	Mt Hood Community College	Business Administration & Management	Associate	59
52.02	Pioneer Pacific College	Business Administration & Management	Associate	37
52.02	Portland Community College	Business Administration & Management	Associate	104
52.02	Rogue Community College	Business Administration & Management	Associate	11
52.02	Southwestern Oregon Community College	Business Administration & Management	Associate	4
52.02	Tillamook Bay Community College	Business Administration & Management	Associate	0
52.02	Umpqua Community College	Business Administration & Management	Associate	17

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
52.02	Concordia University-Portland	Business Administration & Management	Bachelor's	87
52.02	Corban University	Business Administration & Management	Bachelor's	50
52.02	DeVry University-Oregon	Business Administration & Management	Bachelor's	8
52.02	George Fox University	Business Administration & Management	Bachelor's	124
52.02	ITT Technical Institute-Portland	Business Administration & Management	Bachelor's	8
52.02	ITT Technical Institute-Salem	Business Administration & Management	Bachelor's	0
52.02	Marylhurst University	Business Administration & Management	Bachelor's	62
52.02	Northwest Christian University	Business Administration & Management	Bachelor's	25
52.02	Oregon State University	Business Administration & Management	Bachelor's	199
52.02	Pacific University	Business Administration & Management	Bachelor's	31
52.02	Pioneer Pacific College	Business Administration & Management	Bachelor's	4
52.02	Portland State University	Business Administration & Management	Bachelor's	205
52.02	Southern Oregon University	Business Administration & Management	Bachelor's	118
52.02	University of Phoenix-Oregon Campus	Business Administration & Management	Bachelor's	62
52.02	Warner Pacific College	Business Administration & Management	Bachelor's	16
52.02	Warner Pacific College Adult Degree Program	Business Administration & Management	Bachelor's	133
52.02	DeVry University Keller Grad School of Mgmt	Business Administration & Management	Postbaccalaureate	1
52.02	George Fox University	Business Administration & Management	Postbaccalaureate	0
52.02	Oregon Health & Science University	Business Administration & Management	Postbaccalaureate	0
52.02	Concordia University-Portland	Business Administration & Management	Master's	30
52.02	Corban University	Business Administration & Management	Master's	31
52.02	DeVry University Keller Grad School of Mgmt	Business Administration & Management	Master's	16
52.02	Eastern Oregon University	Business Administration & Management	Master's	29
52.02	George Fox University	Business Administration & Management	Master's	100
52.02	Marylhurst University	Business Administration & Management	Master's	372
52.02	Northwest Christian University	Business Administration & Management	Master's	17
52.02	Oregon Health & Science University	Business Administration & Management	Master's	3
52.02	Oregon State University	Business Administration & Management	Master's	49
52.02	Portland State University	Business Administration & Management	Master's	101
52.02	Southern Oregon University	Business Administration & Management	Master's	52
52.02	University of Oregon	Business Administration & Management	Master's	96
52.02	University of Phoenix-Oregon Campus	Business Administration & Management	Master's	15
52.02	University of Portland	Business Administration & Management	Master's	56
52.02	Willamette University	Business Administration & Management	Master's	120
52.02	George Fox University	Business Administration & Management	Doctorate	7

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
52.02	University of Oregon	Business Administration & Management	Doctorate	2
52.03	Eastern Oregon University	Business Administration, Management & Operations, Other	Associate	8
52.03	Heald College-Portland	Business Administration, Management & Operations, Other	Associate	14
52.03	DeVry University-Oregon	Business Administration, Management & Operations, Other	Bachelor's	16
52.03	Eastern Oregon University	Business Administration, Management & Operations, Other	Bachelor's	195
52.03	Northwest Christian University	Business Administration, Management & Operations, Other	Bachelor's	0
52.03	DeVry University Keller Grad School of Mgmt	Business Administration, Management & Operations, Other	Postbaccalaureate	3
52.03	Oregon State University	Business Administration, Management & Operations, Other	Postbaccalaureate	3
52.03	DeVry University Keller Grad School of Mgmt	Business Administration, Management & Operations, Other	Master's	5
51.01	University of Western States	Chiropractic	Doctorate	125
51.271	Oregon Health & Science University	Clinical Informatics	Postbaccalaureate	
51.271	Oregon Health & Science University	Clinical Informatics	Master's	
51.271	Oregon Health & Science University	Clinical Informatics	Doctorate	
51.101	Oregon Institute of Technology	Clinical Laboratory Science/Medical Technology/Technologist	Bachelor's	35
51.382	University of Portland	Clinical Nurse Leader	Master's	13
51.381	University of Portland	Clinical Nurse Specialist	Master's	0
51.31	Oregon Health & Science University	Clinical Nutrition/Nutritionist	Master's	3
42.28	Oregon Institute of Technology	Clinical, Counseling & Applied Psychology	Bachelor's	38
42.28	University of Oregon	Clinical, Counseling & Applied Psychology	Postbaccalaureate	4
42.28	Corban University	Clinical, Counseling & Applied Psychology	Master's	3
42.28	George Fox University	Clinical, Counseling & Applied Psychology	Master's	58
42.28	Lewis & Clark College	Clinical, Counseling & Applied Psychology	Master's	39
42.28	Multnomah University	Clinical, Counseling & Applied Psychology	Master's	16
42.28	Northwest Christian University	Clinical, Counseling & Applied Psychology	Master's	14
42.28	Pacific University	Clinical, Counseling & Applied Psychology	Master's	78
42.28	University of Oregon	Clinical, Counseling & Applied Psychology	Master's	3
42.28	George Fox University	Clinical, Counseling & Applied Psychology	Post-master's	0
42.28	Lewis & Clark College	Clinical, Counseling & Applied Psychology	Post-master's	1
42.28	George Fox University	Clinical, Counseling & Applied Psychology	Doctorate	21
42.28	Pacific University	Clinical, Counseling & Applied Psychology	Doctorate	46
42.28	Portland State University	Clinical, Counseling & Applied Psychology	Doctorate	8
42.28	University of Oregon	Clinical, Counseling & Applied Psychology	Doctorate	10
51.1	Portland Community College	Clinical/Medical Laboratory Technician	Associate	25
51.02	Pacific University	Communication Sciences & Disorders	Bachelor's	
51.02	University of Oregon	Communication Sciences & Disorders	Bachelor's	40

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
51.02	Pacific University	Communication Sciences & Disorders	Postbaccalaureate	
51.02	University of Oregon	Communication Sciences & Disorders	Postbaccalaureate	23
51.02	Pacific University	Communication Sciences & Disorders	Master's	
51.02	University of Oregon	Communication Sciences & Disorders	Master's	24
51.221	Portland State University	Community Health & Preventive Medicine	Bachelor's	145
11.1	Clackamas Community College	Computer/Information Technology Administration & Management	Associate	5
11.1	ITT Technical Institute-Portland	Computer/Information Technology Administration & Management	Associate	0
11.1	ITT Technical Institute-Salem	Computer/Information Technology Administration & Management	Associate	0
11.1	Lane Community College	Computer/Information Technology Administration & Management	Associate	54
11.1	Portland Community College	Computer/Information Technology Administration & Management	Associate	29
11.1	Southwestern Oregon Community College	Computer/Information Technology Administration & Management	Associate	1
11.1	ITT Technical Institute-Portland	Computer/Information Technology Administration & Management	Bachelor's	11
11.1	ITT Technical Institute-Salem	Computer/Information Technology Administration & Management	Bachelor's	0
11.1	Portland State University	Computer/Information Technology Administration & Management	Postbaccalaureate	1
52.021	Central Oregon Community College	Customer Service Management	Associate	3
51.06	Lane Community College	Dental Hygiene/Hygienist	Associate	30
51.06	Mt Hood Community College	Dental Hygiene/Hygienist	Associate	17
51.06	Oregon Institute of Technology	Dental Hygiene/Hygienist	Associate	27
51.06	Portland Community College	Dental Hygiene/Hygienist	Associate	28
51.06	Treasure Valley Community College	Dental Hygiene/Hygienist	Associate	2
51.06	Oregon Institute of Technology	Dental Hygiene/Hygienist	Bachelor's	54
51.06	Pacific University	Dental Hygiene/Hygienist	Bachelor's	33
51.06	Portland Community College	Dental Laboratory Technology/Technician	Associate	11
51.06	Portland Community College	Dental Laboratory Technology/Technician	2 ≤ but < 4 years	5
51.07	Pacific University	Dental Services & Allied Professions, Other	Bachelor's	0
51.04	Oregon Health & Science University	Dentistry	Doctorate	68
51.091	Oregon Institute of Technology	Diagnostic Medical Sonography/Sonographer & Ultrasound Technician	Bachelor's	82
51.31	Oregon Health & Science University	Dietetics/Dietitian	Postbaccalaureate	21
51.31	Oregon Health & Science University	Dietetics/Dietitian	Master's	0
51.34	Birthingway College of Midwifery	Direct Entry Midwifery	2 ≤ but < 4 years	3
51.34	Birthingway College of Midwifery	Direct Entry Midwifery	Bachelor's	1
52.021	Clackamas Community College	E-Commerce/Electronic Commerce	Associate	0
52.021	Southern Oregon University	E-Commerce/Electronic Commerce	Postbaccalaureate	13
51.091	Oregon Institute of Technology	Echocardiography	Bachelor's	
51.09	Central Oregon Community College	Emergency Medical Technology/Technician (EMT Paramedic)	Associate	28

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
51.09	Chemeketa Community College	Emergency Medical Technology/Technician (EMT Paramedic)	Associate	40
51.09	Clackamas Community College	Emergency Medical Technology/Technician (EMT Paramedic)	Associate	0
51.09	Lane Community College	Emergency Medical Technology/Technician (EMT Paramedic)	Associate	13
51.09	Mt Hood Community College	Emergency Medical Technology/Technician (EMT Paramedic)	Associate	0
51.09	Oregon Institute of Technology	Emergency Medical Technology/Technician (EMT Paramedic)	Associate	17
51.09	Portland Community College	Emergency Medical Technology/Technician (EMT Paramedic)	Associate	21
51.09	Rogue Community College	Emergency Medical Technology/Technician (EMT Paramedic)	Associate	13
51.09	Southwestern Oregon Community College	Emergency Medical Technology/Technician (EMT Paramedic)	Associate	10
51.09	Treasure Valley Community College	Emergency Medical Technology/Technician (EMT Paramedic)	Associate	0
51.09	Umpqua Community College	Emergency Medical Technology/Technician (EMT Paramedic)	Associate	12
51.09	Portland Community College	Emergency Medical Technology/Technician (EMT Paramedic)	2 ≤ but < 4 years	3
51.051	Oregon Health & Science University	Endodontics/Endodontology	Post-master's	3
51.22	Willamette University	Environmental Health	Bachelor's	0
14.14	Oregon State University	Environmental/Environmental Health Engineering	Bachelor's	18
14.14	Portland State University	Environmental/Environmental Health Engineering	Bachelor's	4
52.04	Chemeketa Community College	Executive Assistant/Executive Secretary	Associate	0
52.04	Mt Hood Community College	Executive Assistant/Executive Secretary	Associate	8
52.04	Umpqua Community College	Executive Assistant/Executive Secretary	Associate	3
51.381	Oregon Health & Science University	Family Practice Nurse/Nursing	Master's	17
51.381	University of Portland	Family Practice Nurse/Nursing	Master's	0
51.381	Oregon Health & Science University	Family Practice Nurse/Nursing	Post-master's	0
51.381	Oregon Health & Science University	Family Practice Nurse/Nursing	Doctorate	4
52.08	George Fox University	Finance	Bachelor's	1
52.08	Linfield College-McMinnville Campus	Finance	Bachelor's	34
52.08	Oregon State University	Finance	Bachelor's	88
52.08	Portland State University	Finance	Bachelor's	135
52.08	University of Portland	Finance	Bachelor's	34
52.08	Southern Oregon University	Finance	Postbaccalaureate	17
52.08	Portland State University	Finance	Master's	57
52.08	University of Portland	Finance	Master's	3
52.08	University of Oregon	Finance	Doctorate	3
19.05	Oregon State University	Foods, Nutrition, & Related Services	Bachelor's	41
19.05	Portland State University	Foods, Nutrition, & Related Services	Postbaccalaureate	16
19.05	Oregon State University	Foods, Nutrition, & Related Services	Master's	3
51.382	Oregon Health & Science University	Geriatric Nurse/Nursing	Post-master's	0

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
30.11	Portland Community College	Gerontology	Associate	17
30.11	Marylhurst University	Gerontology	Postbaccalaureate	1
30.11	Oregon State University	Gerontology	Postbaccalaureate	2
30.11	Pacific University	Gerontology	Postbaccalaureate	7
30.11	Portland State University	Gerontology	Postbaccalaureate	10
51.08	Northwest Christian University	Health & Medical Administrative Services, Other	Postbaccalaureate	1
51.08	Northwest Christian University	Health & Medical Administrative Services, Other	Master's	2
51.071	Oregon Institute of Technology	Health Informatics	Bachelor's	4
51.271	Oregon Health & Science University	Health Information Management	Postbaccalaureate	
51.271	Oregon Health & Science University	Health Information Management	Master's	
51.271	Oregon Health & Science University	Health Information Management	Doctorate	
51.071	Klamath Community College	Health Information/Medical Records Administration/Administrator	Associate	6
51.071	Mt Hood Community College	Health Information/Medical Records Administration/Administrator	Associate	0
51.071	Central Oregon Community College	Health Information/Medical Records Technology/Technician	Associate	27
51.071	Portland Community College	Health Information/Medical Records Technology/Technician	Associate	32
52	Klamath Community College	Health Professions & Related Clinical Sciences, Other	Associate	0
52	Oregon Health & Science University	Health Professions & Related Clinical Sciences, Other	Postbaccalaureate	13
52	Oregon Health & Science University	Health Professions & Related Clinical Sciences, Other	Master's	20
52	Portland State University	Health Professions & Related Clinical Sciences, Other	Master's	1
51.221	Northwest Christian University	Health Services Administration	Bachelor's	2
51	Corban University	Health Services/Allied Health/Health Sciences	Bachelor's	16
51	Linfield College-Nursing & Health Sciences	Health Services/Allied Health/Health Sciences	Bachelor's	6
51.07	Pioneer Pacific College	Health/Health Care Administration/Management	Associate	77
51.07	Concordia University-Portland	Health/Health Care Administration/Management	Bachelor's	26
51.07	Oregon Institute of Technology	Health/Health Care Administration/Management	Bachelor's	4
51.07	Oregon State University	Health/Health Care Administration/Management	Bachelor's	28
51.07	Pioneer Pacific College	Health/Health Care Administration/Management	Bachelor's	5
51.07	Portland State University	Health/Health Care Administration/Management	Bachelor's	3
51.07	Concordia University-Portland	Health/Health Care Administration/Management	Postbaccalaureate	0
51.07	Oregon Health & Science University	Health/Health Care Administration/Management	Postbaccalaureate	14
51.07	Oregon Health & Science University	Health/Health Care Administration/Management	Master's	55
51.07	Pacific University	Health/Health Care Administration/Management	Master's	13
51.07	Portland State University	Health/Health Care Administration/Management	Master's	28
51.07	University of Portland	Health/Health Care Administration/Management	Master's	0
51.221	Oregon State University	Health/Medical Physics	Bachelor's	7

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
51.221	Oregon State University	Health/Medical Physics	Master's	21
51.221	Oregon State University	Health/Medical Physics	Doctorate	3
51.12	Northwest Christian University	Health/Medical Preparatory Programs, Other	Associate	1
51.12	Treasure Valley Community College	Health/Medical Preparatory Programs, Other	Associate	2
51.12	Oregon Institute of Technology	Health/Medical Preparatory Programs, Other	Bachelor's	6
51.07	University of Phoenix-Oregon Campus	Hospital & Health Care Facilities Administration/Management	Bachelor's	2
52.11	Northwest Christian University	Human Resources Management & Services, Other	Bachelor's	7
52.1	Portland State University	Human Resources Management/Personnel Administration	Bachelor's	132
52.1	DeVry University Keller Grad School of Mgmt	Human Resources Management/Personnel Administration	Postbaccalaureate	1
52.1	Southern Oregon University	Human Resources Management/Personnel Administration	Postbaccalaureate	14
52.1	DeVry University Keller Grad School of Mgmt	Human Resources Management/Personnel Administration	Master's	5
44	Umpqua Community College	Human Services	Associate	6
44	Northwest Christian University	Human Services	Bachelor's	0
44	University of Oregon	Human Services	Bachelor's	90
44	University of Phoenix-Oregon Campus	Human Services	Bachelor's	14
51.082	Birthingway College of Midwifery	Lactation Consultant	Associate	0
22.01	Lewis & Clark College	Law	Doctorate	210
22.01	University of Oregon	Law	Doctorate	161
22.01	Willamette University	Law	Doctorate	124
52.02	Portland State University	Logistics, Materials, & Supply Chain Management	Bachelor's	78
52.12	Treasure Valley Community College	Management Information Systems	Associate	3
52.12	Umpqua Community College	Management Information Systems	Associate	20
52.12	George Fox University	Management Information Systems	Bachelor's	15
52.12	Linfield College-Adult Degree Program	Management Information Systems	Bachelor's	4
52.12	Northwest Christian University	Management Information Systems	Bachelor's	1
52.12	Oregon Institute of Technology	Management Information Systems	Bachelor's	4
52.12	Oregon State University	Management Information Systems	Bachelor's	43
52.12	Portland State University	Management Information Systems	Bachelor's	43
52.12	DeVry University Keller Grad School of Mgmt	Management Information Systems	Postbaccalaureate	0
52.12	Southern Oregon University	Management Information Systems	Postbaccalaureate	16
52.12	DeVry University Keller Grad School of Mgmt	Management Information Systems	Master's	6
52.12	University of Oregon	Management Information Systems	Master's	13
52.12	Western Oregon University	Management Information Systems	Master's	24
52.13	Klamath Community College	Management Information Systems & Services, Other	Associate	0
52.14	Clackamas Community College	Marketing/Marketing Management	Associate	5

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
52.14	Klamath Community College	Marketing/Marketing Management	Associate	2
52.14	Portland Community College	Marketing/Marketing Management	Associate	8
52.14	Tillamook Bay Community College	Marketing/Marketing Management	Associate	0
52.14	Umpqua Community College	Marketing/Marketing Management	Associate	1
52.14	Concordia University-Portland	Marketing/Marketing Management	Bachelor's	0
52.14	George Fox University	Marketing/Marketing Management	Bachelor's	1
52.14	Linfield College-Adult Degree Program	Marketing/Marketing Management	Bachelor's	1
52.14	Northwest Christian University	Marketing/Marketing Management	Bachelor's	5
52.14	Oregon Institute of Technology	Marketing/Marketing Management	Bachelor's	8
52.14	Oregon State University	Marketing/Marketing Management	Bachelor's	95
52.14	Portland State University	Marketing/Marketing Management	Bachelor's	153
52.14	University of Portland	Marketing/Marketing Management	Bachelor's	35
51.151	Portland State University	Marriage & Family Therapy/Counseling	Postbaccalaureate	4
51.151	George Fox University	Marriage & Family Therapy/Counseling	Master's	22
51.151	Lewis & Clark College	Marriage & Family Therapy/Counseling	Master's	14
51.151	University of Oregon	Marriage & Family Therapy/Counseling	Master's	30
51.151	Western Seminary	Marriage & Family Therapy/Counseling	Master's	37
51.151	George Fox University	Marriage & Family Therapy/Counseling	Post-master's	0
51.35	Central Oregon Community College	Massage Therapy/Therapeutic Massage	Associate	6
51.072	Blue Mountain Community College	Medical Administrative/Executive Assistant & Medical Secretary	Associate	8
51.072	Chemeketa Community College	Medical Administrative/Executive Assistant & Medical Secretary	Associate	1
51.072	Heald College-Portland	Medical Administrative/Executive Assistant & Medical Secretary	Associate	20
51.072	Linn-Benton Community College	Medical Administrative/Executive Assistant & Medical Secretary	Associate	25
51.072	Mt Hood Community College	Medical Administrative/Executive Assistant & Medical Secretary	Associate	9
51.072	Treasure Valley Community College	Medical Administrative/Executive Assistant & Medical Secretary	Associate	10
51.072	Umpqua Community College	Medical Administrative/Executive Assistant & Medical Secretary	Associate	21
51.271	Clackamas Community College	Medical Informatics	Associate	0
51.271	Mt Hood Community College	Medical Informatics	Associate	3
51.271	Portland Community College	Medical Informatics	Associate	3
51.271	Southwestern Oregon Community College	Medical Informatics	Associate	0
51.071	Heald College-Portland	Medical Insurance Specialist/Medical Biller	Associate	22
51.071	Rogue Community College	Medical Office Computer Specialist/Assistant	Associate	5
51.071	Chemeketa Community College	Medical Office Management/Administration	Associate	31
51.091	Portland Community College	Medical Radiologic Technology/Science - Radiation Therapist	Associate	31
51.091	Treasure Valley Community College	Medical Radiologic Technology/Science - Radiation Therapist	Associate	0

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
51.091	Oregon Health & Science University	Medical Radiologic Technology/Science - Radiation Therapist	Bachelor's	9
51.071	Chemeketa Community College	Medical Transcription/Transcriptionist	Associate	0
51.071	Mt Hood Community College	Medical Transcription/Transcriptionist	Associate	1
51.071	Treasure Valley Community College	Medical Transcription/Transcriptionist	Associate	0
51.08	Everest College-Portland	Medical/Clinical Assistant	Associate	46
51.08	Heald College-Portland	Medical/Clinical Assistant	Associate	75
51.08	Linn-Benton Community College	Medical/Clinical Assistant	Associate	21
51.08	Mt Hood Community College	Medical/Clinical Assistant	Associate	15
51.08	Pioneer Pacific College	Medical/Clinical Assistant	Associate	94
51.08	Southwestern Oregon Community College	Medical/Clinical Assistant	Associate	5
51.12	Oregon Health & Science University	Medicine	Doctorate	122
51.151	Mt Hood Community College	Mental Health Counseling/Counselor	Associate	22
51.151	Lewis & Clark College	Mental Health Counseling/Counselor	Master's	42
51.151	Southern Oregon University	Mental Health Counseling/Counselor	Master's	25
51.151	George Fox University	Mental Health Counseling/Counselor	Post-master's	0
51.231	Marylhurst University	Music Therapy/Therapist	Bachelor's	6
51.231	Willamette University	Music Therapy/Therapist	Bachelor's	0
51.33	National College of Natural Medicine	Naturopathic Medicine/Naturopathy	Doctorate	83
26.15	Willamette University	Neurobiology & Neurosciences	Bachelor's	0
26.15	Oregon Health & Science University	Neurobiology & Neurosciences	Master's	0
26.15	Oregon Health & Science University	Neurobiology & Neurosciences	Doctorate	18
52.021	University of Oregon	Non-Profit/Public/Organizational Management	Postbaccalaureate	23
52.021	DeVry University Keller Grad School of Mgmt	Non-Profit/Public/Organizational Management	Master's	5
51.091	Oregon Institute of Technology	Nuclear Medical Technology/Technologist	Bachelor's	16
51.38	Oregon Health & Science University	Nurse Anesthetist	Master's	12
51.381	Oregon Health & Science University	Nurse Midwife/Nursing Midwifery	Master's	9
51.381	Oregon Health & Science University	Nurse Midwife/Nursing Midwifery	Post-master's	0
51.38	University of Portland	Nursing Administration	Master's	0
51.382	Mt Hood Community College	Nursing Education	Associate	0
51.382	Oregon Health & Science University	Nursing Education	Master's	3
51.382	Oregon Health & Science University	Nursing Practice	Doctorate	6
51.382	University of Portland	Nursing Practice	Doctorate	3
51.08	Linn-Benton Community College	Occupational Therapist Assistant	Associate	22
51.231	Pacific University	Occupational Therapy/Therapist	Master's	30
52.02	Clatsop Community College	Office Management & Supervision	Associate	0

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
52.02	Columbia Gorge Community College	Office Management & Supervision	Associate	4
52.02	Klamath Community College	Office Management & Supervision	Associate	4
52.02	Linn-Benton Community College	Office Management & Supervision	Associate	4
52.02	Portland Community College	Office Management & Supervision	Associate	62
52.02	Southwestern Oregon Community College	Office Management & Supervision	Associate	0
52.02	Tillamook Bay Community College	Office Management & Supervision	Associate	0
52.02	Treasure Valley Community College	Office Management & Supervision	Associate	6
52.021	Clackamas Community College	Operations Management & Supervision	Associate	1
52.021	Oregon Institute of Technology	Operations Management & Supervision	Bachelor's	14
52.021	Oregon State University	Operations Management & Supervision	Bachelor's	68
52.021	University of Portland	Operations Management & Supervision	Bachelor's	16
51.19	Pacific University	Ophthalmic & Optometric Support Services & Allied Professions	Bachelor's	5
51.19	Pacific University	Ophthalmic & Optometric Support Services & Allied Professions	Master's	4
51.18	Portland Community College	Ophthalmic Technician/Technologist	Associate	17
51.17	Pacific University	Optometry	Doctorate	89
52.1	Warner Pacific College Adult Degree Program	Organizational Behavior Studies	Associate	53
52.021	Warner Pacific College Adult Degree Program	Organizational Leadership	Master's	50
51.051	Oregon Health & Science University	Orthodontics/Orthodontology	Master's	4
51.051	Oregon Health & Science University	Orthodontics/Orthodontology	Post-master's	4
51.051	Oregon Health & Science University	Periodontics/Periodontology	Master's	2
51.051	Oregon Health & Science University	Periodontics/Periodontology	Post-master's	3
26.1	Oregon State University	Pharmacology & Toxicology	Master's	1
26.1	Oregon Health & Science University	Pharmacology & Toxicology	Doctorate	3
26.1	Oregon State University	Pharmacology & Toxicology	Doctorate	2
51.2	Oregon State University	Pharmacy	Doctorate	86
51.2	Pacific University	Pharmacy	Doctorate	92
51.081	Chemeketa Community College	Pharmacy Technician/Assistant	Associate	4
51.081	Everest College-Portland	Pharmacy Technician/Assistant	Associate	13
51.081	Heald College-Portland	Pharmacy Technician/Assistant	Associate	17
51.21	Oregon State University	Pharmacy, Pharmaceutical Sciences, & Administration, Other	Master's	1
51.21	Oregon State University	Pharmacy, Pharmaceutical Sciences, & Administration, Other	Doctorate	2
51.081	Lane Community College	Physical Therapy Assistant	Associate	25
51.081	Mt Hood Community College	Physical Therapy Assistant	Associate	23
51.081	Treasure Valley Community College	Physical Therapy Technician/Assistant	Associate	3
51.231	George Fox University	Physical Therapy/Therapist	Doctorate	

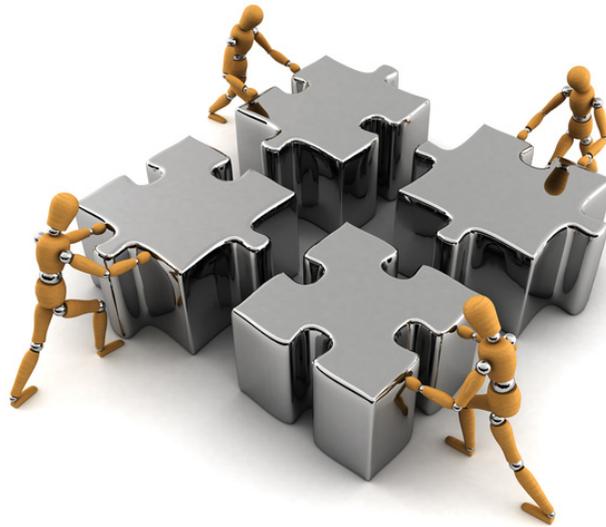
2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
51.231	Pacific University	Physical Therapy/Therapist	Doctorate	39
51.091	Pacific University	Physician Assistant	Bachelor's	2
51.091	Oregon Health & Science University	Physician Assistant	Master's	35
51.091	Pacific University	Physician Assistant	Master's	42
51.092	Oregon Institute of Technology	Polysomnography	Associate	4
51.4	Treasure Valley Community College	Practical Nursing, Vocational Nursing & Nursing Assistants, Other	Associate	14
51.11	Treasure Valley Community College	Pre-Dentistry Studies	Associate	1
51.11	Treasure Valley Community College	Pre-Medicine/Pre-Medical Studies	Associate	1
51.11	Southern Oregon University	Pre-Medicine/Pre-Medical Studies	Bachelor's	2
51.11	Treasure Valley Community College	Pre-Pharmacy Studies	Associate	2
51.111	Treasure Valley Community College	Pre-Physical Therapy Studies	Associate	0
52.021	ITT Technical Institute-Portland	Project Management	Bachelor's	0
52.021	ITT Technical Institute-Salem	Project Management	Bachelor's	0
51.381	Oregon Health & Science University	Psychiatric/Mental Health Nurse/Nursing	Master's	12
51.381	Oregon Health & Science University	Psychiatric/Mental Health Nurse/Nursing	Post-master's	1
51.381	Oregon Health & Science University	Psychiatric/Mental Health Nurse/Nursing	Doctorate	1
44.04	Portland Community College	Public Administration	Associate	3
44.04	Eastern Oregon University	Public Administration	Bachelor's	1
44.04	University of Oregon	Public Administration	Bachelor's	47
44.04	Portland State University	Public Administration	Postbaccalaureate	4
44.04	Willamette University	Public Administration	Postbaccalaureate	0
44.04	Portland State University	Public Administration	Master's	92
44.04	University of Oregon	Public Administration	Master's	15
51.22	Oregon State University	Public Health	Bachelor's	93
51.22	Oregon Health & Science University	Public Health	Postbaccalaureate	7
51.22	Oregon Health & Science University	Public Health	Master's	40
51.22	Oregon State University	Public Health	Master's	51
51.22	Oregon State University	Public Health	Doctorate	7
51.221	Oregon State University	Public Health Education & Promotion	Bachelor's	3
51.221	Western Oregon University	Public Health Education & Promotion	Bachelor's	68
51.221	Portland State University	Public Health Education & Promotion	Master's	26
51.23	Portland State University	Public Health, Other	Bachelor's	98
51.091	Linn-Benton Community College	Radiologic Technology/Science - Radiographer	Associate	22
51.091	Oregon Institute of Technology	Radiologic Technology/Science - Radiographer	Bachelor's	50
51.38	Blue Mountain Community College	Registered Nursing/Registered Nurse	Associate	18

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
51.38	Central Oregon Community College	Registered Nursing/Registered Nurse	Associate	47
51.38	Chemeketa Community College	Registered Nursing/Registered Nurse	Associate	35
51.38	Clackamas Community College	Registered Nursing/Registered Nurse	Associate	35
51.38	Clatsop Community College	Registered Nursing/Registered Nurse	Associate	13
51.38	Columbia Gorge Community College	Registered Nursing/Registered Nurse	Associate	19
51.38	ITT Technical Institute-Portland	Registered Nursing/Registered Nurse	Associate	0
51.38	Lane Community College	Registered Nursing/Registered Nurse	Associate	80
51.38	Linn-Benton Community College	Registered Nursing/Registered Nurse	Associate	47
51.38	Mt Hood Community College	Registered Nursing/Registered Nurse	Associate	64
51.38	Oregon Coast Community College	Registered Nursing/Registered Nurse	Associate	18
51.38	Portland Community College	Registered Nursing/Registered Nurse	Associate	34
51.38	Rogue Community College	Registered Nursing/Registered Nurse	Associate	31
51.38	Southwestern Oregon Community College	Registered Nursing/Registered Nurse	Associate	26
51.38	Treasure Valley Community College	Registered Nursing/Registered Nurse	Associate	19
51.38	Umpqua Community College	Registered Nursing/Registered Nurse	Associate	60
51.38	Concordia University-Portland	Registered Nursing/Registered Nurse	Bachelor's	29
51.38	George Fox University	Registered Nursing/Registered Nurse	Bachelor's	40
51.38	Linfield College-Adult Degree Program	Registered Nursing/Registered Nurse	Bachelor's	89
51.38	Linfield College-Nursing & Health Sciences	Registered Nursing/Registered Nurse	Bachelor's	172
51.38	Oregon Health & Science University	Registered Nursing/Registered Nurse	Bachelor's	296
51.38	University of Portland	Registered Nursing/Registered Nurse	Bachelor's	185
51.38	Oregon Health & Science University	Registered Nursing/Registered Nurse	Doctorate	4
51.091	Lane Community College	Respiratory Care Therapy/Therapist	Associate	32
51.091	Mt Hood Community College	Respiratory Care Therapy/Therapist	Associate	28
51.091	Concorde Career College-Portland	Respiratory Care Therapy/Therapist	2 ≤ but < 4 years	26
51.091	Oregon Institute of Technology	Respiratory Care Therapy/Therapist	Bachelor's	21
44.07	Chemeketa Community College	Social Work	Associate	5
44.07	Clackamas Community College	Social Work	Associate	18
44.07	Rogue Community College	Social Work	Associate	15
44.07	Southwestern Oregon Community College	Social Work	Associate	2
44.07	Treasure Valley Community College	Social Work	Associate	9
44.07	Concordia University-Portland	Social Work	Bachelor's	14
44.07	George Fox University	Social Work	Bachelor's	17
44.07	Pacific University	Social Work	Bachelor's	8
44.07	Portland State University	Social Work	Bachelor's	48

2012 CIP Code	Institution Name	Degree/Program Title	2012 Award Level	Total Reported Graduates 2012
44.07	University of Portland	Social Work	Bachelor's	17
44.07	Warner Pacific College	Social Work	Bachelor's	11
44.07	Portland State University	Social Work	Master's	183
44.07	Portland State University	Social Work	Doctorate	5
51.02	Portland State University	Speech & Hearing Sciences	Bachelor's	
51.02	Portland State University	Speech & Hearing Sciences	Postbaccalaureate	
51.02	Portland State University	Speech & Hearing Sciences	Master's	
51.15	Central Oregon Community College	Substance Abuse/Addiction Counseling	Associate	5
51.15	Chemeketa Community College	Substance Abuse/Addiction Counseling	Associate	10
51.15	Portland Community College	Substance Abuse/Addiction Counseling	Associate	25
51.15	Rogue Community College	Substance Abuse/Addiction Counseling	Associate	0
51.15	Southwestern Oregon Community College	Substance Abuse/Addiction Counseling	Associate	1
51.15	Tillamook Bay Community College	Substance Abuse/Addiction Counseling	Associate	0
51.15	Lewis & Clark College	Substance Abuse/Addiction Counseling	Master's	13
51.091	Mt Hood Community College	Surgical Technology/Technologist	Associate	20
14.27	Portland State University	Systems Engineering	Postbaccalaureate	3
14.27	Portland State University	Systems Engineering	Master's	4
30.06	Portland State University	Systems Science & Theory	Master's	7
30.06	Portland State University	Systems Science & Theory	Doctorate	4
51.091	Oregon Institute of Technology	Vascular Technology	Bachelor's	
51.231	Western Oregon University	Vocational Rehabilitation Counseling/Counselor	Master's	14



Oregon University System's Health Care Workforce Initiative: Milestone Three Report



Assessing the readiness for engagement between Oregon's public universities and the health care industry to respond to health care workforce needs for a transforming health care system.

Acknowledgements

The Oregon Healthcare Workforce Institute gratefully acknowledges the support and guidance of the Oregon University System's Chancellor's Office, the members of the Provosts' Council and the six public universities engaged in the *Health Care Workforce Initiative*: Oregon Health & Science University, Oregon Institute of Technology, Oregon State University, Portland State University, Southern Oregon University, and University of Oregon.

We would like to thank the University-Health Care Industry Team members, university representatives, and industry employers for their time, expertise, insight, and advice to inform the public universities' *Health Care Workforce Initiative*.

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Oregon University System's Health Care Workforce Initiative: Milestone Three Report

A transforming health care environment, population demographics, an aging workforce, advances in medical knowledge and technology, and finite public and private resources make a compelling argument for ongoing strategic engagement between the universities and the health care industry to address Oregon's health care workforce needs. To understand the education and workforce impacts of these dynamic forces, the Oregon University System and Oregon's public universities developed a multiphase initiative to assess the readiness for engagement between Oregon's public universities and the health care industry to respond to workforce needs for a transforming health care system. The six universities included in this initiative are: Oregon Health & Science University, Oregon Institute of Technology, Oregon State University, Portland State University, Southern Oregon University, and the University of Oregon.

In Milestones One and Two of the *Health Care Workforce Initiative*, university and health care industry representatives came together as a team to identify challenges and opportunities, as well as gaps in knowledge, relationships and needs in educating and employing the health care workforce. As a result of these facilitated discussions, the University-Health Care Industry Team members identified four key areas for further collaborative action:

- Preparing a workforce with the competencies needed for health care transformation and new care delivery systems;
- Identifying and understanding new and emerging health care workforce roles and needs;
- Matching graduate supply with industry's workforce demand, focusing on providers needed to support health care transformation, building a diverse workforce, and filling positions vacated by Oregon's aging health care workforce; and
- Jointly approaching the Higher Education Coordinating Commission or other entities for additional investments in health profession and related education programs and approval of new health profession programs.

In follow up to Milestone Two, the Oregon University System's Provost Council directed the Oregon Healthcare Workforce Institute to reconvene the University-Health Care Industry Team to design a plan to enable the universities and the health care industry to engage and sustain a strategic partnership. The Provost Council identified that the partnership structure should be designed to:

- Jointly promote timely responses to health care workforce and education needs;
- Address investments in health profession education; and
- Advance policy solutions and appropriations requests to the appropriate state entities and the state legislature.

Towards those goals, the Oregon Healthcare Workforce Institute convened the University-Health Care Industry Team on June 3, 2014 to identify elements of a proposed strategic partnership, including purpose, membership, funding and success criteria. Additional information for this milestone was also gathered pre- and post-meeting from the university and industry representatives and from representatives of similar education-industry partnerships (see Appendices A, B and C).

Purpose

In support of the three key functions identified (above) by the Provost Council, the University-Health Care Industry Team members further delineated roles for the strategic partnership:

- *Enhance educational capacity through collaborative engagement.* The team members identified the importance of a collective impact approach to inform and develop Oregon's educational institutions' capacity to produce a high quality health care workforce and to fund the educational mission.
- *Identify, collect and analyze education and workforce data.* Recognizing the importance of making informed investments in health profession education and to evaluate the work of the strategic partnership, the team members identified an essential requirement of obtaining ongoing and longitudinal student, graduate and workforce supply and demand data, as well as information on workforce skills sets.
- *Promote the expansion of diversity in health care education programs and the health care workforce.* To expand access to culturally appropriate health care services and help reduce health care disparities, the team members advocated that the

strategic partnership focus on expanding the diversity of students entering and graduating from health profession education programs.

- *Promote interprofessional education for collaborative practice.* To prepare students to work in team-based health care delivery structures, the team members determined the importance of advancing interprofessional training.
- *Retrain the incumbent health care workforce for a transforming health care system.* The team members recognized that state and national health policy goals, payment systems, and delivery structures have a greater focus on preventive care, team care, and community/population health. As such, the team members identified the need to also address education and training needs to assist in retooling the current health care workforce and to promote collaborative practices.
- *Extend beyond the licensed health care workforce.* Because the health care industry and health services delivery systems employ more than licensed clinical health care workers, the team members concluded that the strategic partnership should include the non-licensed and non-clinical workforce (e.g., administrators, health information technology workers) needs in its efforts as well.
- *Promote applied research.* The team members cited the importance of the universities and the health care industry to engage jointly in the cycle of knowledge creation, transfer, and application on issues impacting the health care workforce and delivery structures, particularly during this period of health system transformation.
- *Collaboratively address educational pipeline issues to prepare students for careers in the health care industry.* The team members determined the strategic partnership needs to include in its focus the issues facing the educational pipeline that limits the opportunities for students to enter into health care careers. This role includes a collaborative approach across industries, educational levels, and organizations to promote STEM and related educational opportunities.

Members

The University-Health Care Industry Team members recognized that the structure of the strategic partnership is important to its success and funding opportunities. As one health care industry leader stated, “We need the right people on the council so they can build bridges over restraints.”

Focused on an industry-driven structure, the team members identified that at its core the strategic partnership should include:

- Industry representatives, specifically operations, clinical, and/or human resource leaders from Oregon’s health systems, primary care clinics, mental health clinics, long-term care organizations, tribal health programs, and the Veteran’s Health Administration.
- Post-secondary education leaders (i.e., presidents, provosts, deans, or department directors) from medicine, nursing, allied health, public/community health, and health-related technology.
- Representation from the State Legislature to serve as champion(s) for the work of the university-health care industry strategic partnership.

Recognizing that duplicating efforts is not in the best interest of the state, education or health care industry, the team members recommended that the membership include dual or liaison roles that would allow for seamless connections with other education and workforce development entities. This includes the state’s STEM Council, the Oregon Health Policy Board’s Health Care Workforce Committee, the Oregon Workforce Investment Board or local workforce investment boards, and the Oregon Area Health Education Center’s Statewide Advisory Board.

The team members recommended that the strategic partnership include “fluid participants”, or those individuals with specific expertise or in specific positions, who could serve in advisory or ad hoc roles. These participants may include, for example, health profession licensing board directors or medical equipment or technology vendors. Moreover, several team members recognized that a significant number of Oregon’s health profession education students engage in clinical training sites located in other states (e.g. a cross-border hospital). As such, it may be of value to include representation from these clinical training sites in Oregon’s strategic partnership when appropriate.

The team members strongly cautioned against a large or overwhelming number of members, which might hamper the work of the strategic partnership.

Funding

The University-Health Care Industry Team members stressed that for the strategic partnership to be successful and to make effective investments in health profession

education, stable funding from the State of Oregon is required. With stable state funding, the strategic partnership can leverage additional investments, in-kind and equipment donations, clinical education opportunities, and engage in collaborative efforts on workforce grants.

The team members identified the need for stable funding for start-up costs and operational capacity to staff the work of the strategic partnership. This includes staff required for the application and coordination of grants, meeting facilitation and logistics, and data collection, analysis and reporting.

Success Criteria

The importance of continuous learning through performance measurement and identifying the return on investment are vital to guiding and informing the work of the strategic partnership. The literature identifies numerous articles, reports, and assessment tools on the models, roles and successes of strategic partnerships and collective impact efforts, and which assessment tools are appropriate at given stages in the partnerships' evolution and work (see Appendix D).

Specific to Oregon's university-health care industry strategic partnership, the team members identified several success criteria:

- The strategic partnership has start-up funding.
- The health care industry representatives understand public education's goals.
- The public universities are able to achieve what they are being measured on with regard to the health care industry's workforce.
- Evidence exists that collaboration and alignment are occurring among the partners in the strategic partnership who have not historically worked together.
- Systemic issues impacting health care workforce development are addressed.
- New resources are leveraged.
- Health profession education curriculum is current, relevant and designed to build capacity.
- Graduation rates match employers' needs.
- Skill supply meets skill demand.
- The health care industry job vacancy rates decrease.

- The health care industry and the universities accomplish together what needs to get done, including identifying barriers and gaps for universities' abilities to meet performance measures and accreditation outcomes.
- The strategic partnership has the data it needs to inform its decisions.
- When outcomes measurements are based on gaps, the gaps have been defined appropriately.

Strategic and Collaborative Alignment

The dynamic health care environment makes a compelling case for an ongoing strategic engagement among the universities and the health care industry to promote timely responses, advance investments and develop policy solutions to Oregon's workforce and education needs. Milestones One and Two of the public universities' *Health Care Workforce Initiative* identified the need and value for developing a strategic partnership between the universities and health care industry.

In this milestone, the University-Health Care Industry Team provided recommendations for the purpose, objectives, membership, funding, success criteria, and cautions for a formal strategic partnership between Oregon's public universities and the health care industry. As one health care industry representative said, "It's better if we work together to address what's produced."

Action Steps

For consideration by the Provost Council, the next steps in this effort may include the following:

- Formalize the university-health care industry strategic partnership through action by the Provost Council.
- Identify and obtain start-up funding.
- Develop and implement the strategic partnership infrastructure (e.g., backbone organization for a collective impact model, staffing).
- Identify and obtain commitments from strategic partner participants.
- Conduct facilitated meetings to formalize the mission, shared goals, governance, and common agenda to inform the strategic partnerships' subsequent efforts to develop a strategic work plan to address funding, investments, and initiatives.
- Develop processes for continual assessments, performance measurements, and workforce and education data review by the strategic partnership to inform and revise the strategic work plan and promote cross-sector learning.

Appendices

Appendix A

Minnesota's Healthcare Education Industry Partnership Council

Purpose

HealthForce Minnesota was created to increase the number and expand the diversity of health care workers, integrate health science education practice and research, and build capacity for education and industry to collaborate to enhance patient care. Grants to programs strategically invest public and private funds to meet defined goals and objectives.

Mission

- Provide the health care industry with a well-trained, flexible workforce,
- Create ongoing capacity to transform health science education and delivery, and
- Position Minnesota as a global leader in health care education, practice, research and innovation.

Core Goals

- Convene educators and health care industry stakeholders to positively impact health sciences education and practice.
- Enhance economic development through increased quality and sustainability of health care education, practice and innovation.

Objectives

- Expand diversity in health care through collaborative partnerships
- Enhance and expand health care degree programs
- Prepare today's workers for tomorrow's challenges
- Launch applied health care research

Funding

HealthForce Minnesota is one of four industry Centers of Excellence in Minnesota funded by a \$10 million state appropriation and is implemented by Minnesota State Colleges and Universities.

Healthcare Education Industry Partnership Council

The Healthcare Education Industry Partnership Council is a venue to identify health care workforce issues and a platform for implementing solutions. The Council meets quarterly meetings to evaluate health care workforce needs, plan initiatives, disseminate information, exchange ideas, and identify concerns. The Council began in 1998 and in 2010 the Council integrated into HealthForce Minnesota. Members of the Council include representatives from health systems, small rural hospitals, acute care and

ambulatory care, health care associations and organizations, state agencies, and public and non-public universities.

References/Excerpts for this briefing extracted directly from:

HealthForce Minnesota: <http://www.healthforceminnesota.org/>

Healthcare Education Industry Partnership Council:

<http://www.healthforceminnesota.org/Partnership-Council>

HealthForce FY2012 Summary Report:

http://www.healthforceminnesota.org/PDFsdocs/FINAL_HealthForceAnnualReport_single.pdf

Appendix B

Oregon's Engineering and Technology Industry Council (ETIC)

Purpose

Established in state statute in 1997, ETIC's mission is to make postsecondary engineering and technology education a strategic resource to fuel Oregon's economy and create opportunities for Oregonians. In order to address the workforce needs of Oregon's engineering, technology and manufacturing industries, ETIC's initial goals were to double the number of engineering degrees awarded in Oregon, create world-class institutions, and increase research funding.

Vision: Oregon's engineering and technology education and research programs are strategic assets for Oregon's economy and Oregon's residents by:

- Providing businesses a competitive advantage in the global economy;
- Providing unique programs that meet the needs of Oregon's industry clusters;
- Attracting resources to Oregon from throughout the world;
- Dramatically increasing the number of graduates with bachelors, masters, and PhDs;
- Performing innovative research that gives businesses a competitive advantage.

Membership

ETIC's membership is made up of executives from Oregon's engineering, technology, computer, and manufacturing firms in partnership with leaders from Oregon public universities. The membership currently includes 14 industry (voting) and 15 university (non-voting) members.

Funding

ETIC establishes criteria measurements for investments from the Oregon Engineering Education Investment Fund, makes specific investment recommendations, and monitors the results of these investments. Funds come from state appropriations, which are used to leverage private dollars. ETIC funding aims to increase the number of engineering and technology graduates, promote collaboration between education and industry and among the public universities, and expand university research and talent pool. ETIC funds have been used to increase faculty capacity and diversity, purchase engineering facilities and equipment, jumpstart research, and support middle and high school education pipelines.

References/Excerpts extracted directly from:

Oregon ETIC: <http://www.ous.edu/etic>

ETIC Enabling Legislation (1997): <http://www.oregonetic.org/docs/SB504.pdf>

ETIC Bylaws: <http://former.ous.edu/sites/default/files/ETIC/eticbylaws8-09-13.pdf>

Oregon University System (November 2008). *ETIC: Building Oregon's Economy through Investing in Education and Research*. Available at

<http://www.oregonetic.org/docs/ETICbrochurefinalNov.pdf>

ETIC Governance Proposal (2014):

<https://olis.leg.state.or.us/liz/2014R1/Downloads/CommitteeMeetingDocument/31986>.

Appendix C

Washington Health Information Industry-Education Council

Purpose

The Washington Health Information Industry-Education Council is a voluntary forum for employers and health information technology (health IT) education programs to align educational opportunities with health IT workforce needs and to provide career opportunities for graduates. The Council is closely aligned with Washington's statewide health information technology plan.

Membership

The Washington Health Information Industry-Education Council membership includes representatives from the University of Washington, Eastern Washington University, the state's community colleges, the Office of the Superintendent for Public Instruction, hospitals, medical practices, tribal clinics, health information technology professional societies, the Washington State Hospital Association, the Washington State Medical Association, the Washington State Medical Group Management Association, and the Regional Extension Center.

The Council is facilitated by the director of the Health Care Policy Division within the Washington Health Care Authority. The Council is staffed by employees of the Health Care Authority's Health Care Policy Division.

Funding

The Health Information Industry-Education Council obtains funds from its member universities and community colleges, which is used to leverage funds from other member organizations. The individuals staffing the Council are employees of the Washington Health Care Authority.

References/Excerpts extracted directly from:

Washington Health Information Industry Council:

<http://www.hca.wa.gov/healthit/pages/whiiec.aspx>.

Washington Health Information Industry Council Health IT Employer Needs Assessment:

http://www.hca.wa.gov/HealthIT/Documents/employer_needs_assessment.PDF.

Washington Health Information Industry Council Startup Primer:

http://www.hca.wa.gov/HealthIT/Documents/HIIEC_Startup_Primer.pdf

Washington State Medical Association:

http://www.wsma.org/doc_library/PracticeResourceCenter/OperationsExpertise/PracticeOperations/PO_WHIIEC_website_text.pdf

Washington State Medical Group Management Association:

http://www.wsmgma.org/docs/whiiec_roster.pdf.

Appendix D

Selected Resources on Strategic Partnerships and Collective Impact Models

Centers for Disease Control and Prevention (2008). *Evaluation Guide: Fundamentals of Evaluating Partnerships*. Atlanta: U.S. Department of Health and Human Services.

Available at

http://www.cdc.gov/dhdspp/programs/nhdsp_program/evaluation_guides/docs/partnership_guide.pdf.

Centers for Disease Control and Prevention, Division of Nutrition, Physical Activity, and Obesity (2011). *Partnership Evaluation Guidebook and Resources*. Atlanta: U.S. Department of Health and Human Services. Available at

<http://www.cdc.gov/obesity/downloads/partnershipevaluation.pdf>.

Community-Campus Partnerships for Health: <https://ccph.memberclicks.net/>.

Hardy, B., Hudson, B., & Waddington, E. (2003). *Assessing Strategic Partnership: The Partnership Assessment Tool*. Office of the Deputy Prime Minister.

Community-Campus Partnerships for Health Board of Directors. *Position Statement on Authentic Partnerships*. *Community-Campus Partnerships for Health, 2013*. Available at

<https://ccph.memberclicks.net/principles-of-partnership>.

Cravens, K., Piercy, N. and Cravens, D. (2000). Assessing the performance of strategic alliances: Matching metrics to strategies, *European Management Journal*, 18(5): 529-541.

FSG (Collective Impact): <http://www.fsg.org/>.

HanleyBrown, F., Kania, J., & Kramer, M. (2012). Channeling change: Making collective impact work. *Palo Alto, CA: Stanford Social Innovation Review*. Available at

<http://partnership2012.com/download/Collective%20Impact%20II.pdf>.

HealthEast and Minnesota State Colleges & Universities (2009). *The Case for Lean-Flow: Joining Forces for Empowering Results*. Available at

http://www.mnscu.edu/business/casestudies/pdf/healtheast_case_study8-09.pdf.

Kania, J., & Kramer, M. (2011). Collective impact. *Stanford Social Innovation Review*, 1(9), 36-41. Available at

http://c.ymcdn.com/sites/www.lano.org/resource/dynamic/blogs/20131007_093137_25993.pdf.

Kania, J., & Kramer, M. (2013). Embracing emergence: How collective impact addresses complexity, *Stanford Social Innovation Review*, January 21, 2013 online edition.

Available at

http://www.ssireview.org/blog/entry/embracing_emergence_how_collective_impact_addresses_complexity.

McKay, H., Michael, S., Barrett, L., Edwards, R., and Stanik, L. (2013). *Colorado SECTORS Initiative: Greater Metro Denver Healthcare Industry Partnership*. Piscataway, NJ: Rutgers, The State University of New Jersey. Available at

<http://smlr.rutgers.edu/eerc/colorado-sectors-initiative>.

Minnesota Healthcare Education Industry Partnership Council:

<http://www.healthforceminnesota.org/Partnership-Council/>.

Minnesota State Colleges & Universities' Centers of Excellence:

<http://www.mnscu.edu/business/excellence/index.html>.

Pennsylvania Workforce Investment Board (2009). *The Strategic Industry Partnership Toolkit: A Toolkit for Effective Industry Partnership Management*. Available at

<http://www.portal.state.pa.us/portal/server.pt?open=18&objID=766187&mode=2>.

Phillips, D., and Splansky Juster, J. *Committing to Collective Impact: From Vision to Implementation*. Collective Impact Forum. Available at

<http://www.fsg.org/tabid/191/ArticleId/1088/Default.aspx?srpush=true>

Preskill, H., Parkhurst, M. and Splansky Juster, J. (2013). *Guide to Evaluating Collective Impact: Learning and Evaluation in the Collective Impact Context*. San Francisco: The Collective Impact Forum and FSG. Available at

<http://www.fsg.org/tabid/191/ArticleId/1098/Default.aspx?srpush=true>.

Turner, S., Merchant, K., Kania, J., Martin, E. (2012). Understanding the value of backbone organizations in collective impact. *Stanford Social Innovation Review*, July 17-20, 2012 . Available at

http://www.ssireview.org/blog/entry/understanding_the_value_of_backbone_organizations_in_collective_impact_1

Washington Health Information Industry-Education Council:

<http://www.hca.wa.gov/healthit/pages/whiiec.aspx>

Washington Health Information Industry-Education Council (2014). *A Primer: Starting a Health Information Industry-Education Council*. Olympia: Washington Health Care Authority. Available at

http://www.hca.wa.gov/HealthIT/Documents/HIIEC_Startup_Primer.pdf.

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