

# Washington State Health Science Project



**BUILDING A PROGRAM OF  
EXCELLENCE**

**2014-2015**

# Washington State Health Science Project

## BUILDING A PROGRAM OF EXCELLENCE

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### Table of Contents

<b><i>Project Overview</i></b>	
Background	1
Review Design Framework	
<b><i>Process</i></b>	
Gather baseline data	2
Build a learning continuum Program of Study (POS)	2
Establish sustainable partnerships	3
<b>Gather Baseline Data- <i>Findings</i></b>	4
Assess current status of the district/area health science programs: Self-Assessment	
Assess current status of the district/area health science programs: BETA Site Review	7
BETA Site Observations and Recommendations	8
Assess healthcare workforce needs by community type Washington State Demographics-QUICK FACTS	18
Build a learning continuum Program of Study (POS) Adopt/adapt the National Healthcare Foundation Standards through a sequence of implementation strategies	21
Health Science Career Cluster Learning Continuum	22
Program of Study Standards Implementation Options	23
Option 1-Table 2	25
Option 2-Table 3	26
Option 3-Table 4	27
Health Science Pathway Options-Table 5	28
Establish sustainable partnerships: Establish a Health Science Leadership Team	29
Establish sustainable partnerships: Offer a sustained staff development program for the health science faculty	30
Introduce standards aligned implementation strategies: Integrated Activities	31
Introduce standards aligned implementation strategies: Interdisciplinary Curriculum	33

### ***Project Overview***

#### Background

According to the Bureau of Labor Statistics the Healthcare and Social Assistance Sector is projected to gain the most jobs (5.6 million between 2010 and 2020) of any industry sector. Similar growth is reflected for Washington State with an estimated additional 1520 health professionals needed each year between 2014-2019 (High Skills, High Wages, Goal 2 page 8).

While the overall growth for all industry sectors is 11% the projections are 29% for the health care and social assistance sector accounting for nearly one-third of the total projected increase in jobs. The growth reflects, in part, the demand for healthcare workers to address the needs of an aging population. Of the 30 occupations projected to have the largest percentage increase between 2012 and 2022, 14 are related to healthcare. Employment growth is not the only source of job openings. BLS also projects job openings resulting from the need to replace workers who retire or otherwise permanently leave an occupation. In 2012 the health care and social assistance sector made up 11.7% of the workforce with projections for an increase to 13.6% by 2022<sup>1</sup>.

Many factors affect health outcomes, quality of healthcare delivery systems and workforce supply. Much has been published about the burgeoning aging population, but some of the other influencers, such as income, emerging new technologies, changing disease profiles, changing public health priorities and the growing focus upon prevention programs greatly impact all stakeholders attempting to address their “niche” of health care issues.<sup>2</sup>

The three part Washington State Health Science: BUILDING A PROGRAM OF EXCELLENCE project is designed to increase the number of students seeking a career in healthcare, build a rigorous program of study learning continuum and introduce standards that align with expectations of healthcare employers and postsecondary programs. Adoption and implementation of a research based secondary Program of Study designed to meet course requirements for Washington State will result in a smooth transition to post-secondary preparation and entry level employment.

Information gathered for the project has been consolidated for a statewide report outlining implementation strategies for various school configurations and locations. These strategies include the creation of a statewide Health Science Leadership Team to help guide and support the Program of Study adoption. The selected district BETA sites will build on the information gained at the staff development session held May 12, 2015. The sites will also form a support network with regularly scheduled discussions aimed at strengthening their work. Finally the Leadership Team and the BETA site team network will assist the Washington State Health Science Supervisor with replication of the Program of Study across the state through site mentoring/collaboration, presentations at state sponsored conferences and other professional development opportunities.

#### Review Design Framework

To support states in developing Career Pathways, the U.S. Department of Education, Office of Career, Technical, and Adult Education issued a design framework. The framework contains 10 supporting components that are viewed by practitioners as instrumental for creating and implementing a high quality, comprehensive career pathway (program of study). The design framework provides quality assurance markers for states/districts/programs seeking to promote development of consistent career pathways to result in program improvement.

The design framework, issued in early 2010, is the foundation for guidance and a self-assessment of readiness and capacity. The use of a self-assessment as an evaluative and re-evaluative tool may be helpful in determining capacity for both state and local career pathways implementation and readiness. Consideration of each component within the framework fosters stakeholder conversation and reflection on the status of readiness and capacity for full systemic implementation. Each of the components holds a pivotal role within career pathways systemic development and implementation.

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<sup>1</sup> *Bureau of Labor Statistics* EMPLOYMENT PROJECTIONS -- 2012-2022, December 19, 2013

<sup>2</sup> National Center for the Analysis of Healthcare Data, Workforce Demand Analysis, October 2013

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The components are not independent of each other nor are they of equal priority. Career pathways system developers and implementers may utilize the capacity and readiness self-assessment for guidance in determining which of the components are the most pressing for state and/or local consideration in strategic planning. The tool is intended for planning and reflection for career pathways stakeholders.

The framework's supporting components can be viewed as a scaffold to strengthen the career pathways system. An individual supporting element may not be exclusive to other components. For example, professional development may be needed, and desired, to support several of the required components. Another example may be the need for policies to support secondary students receiving postsecondary credit.

### ***Process***

Through research, on-site visits, questionnaires, meetings and workshops, the districts three-part project will accomplish the following:

#### 1. Gather baseline data

- Assess current status of the district/area health science programs
  - ⦿ Base assessment on the US Dept. of Education, Office of Career Technical and Adult Education (OCTAE) Program of Study Design Framework, created in collaboration with and adopted by the National Association of State Directors of Career and Technical Education consortium (NASDCTEc).
  - ⦿ Determine how the CTE Framework Components and Assessments, Standards and Competencies, and Washington State Standards Alignment reporting is utilized at the site.
    - Career Pathway Framework Components
      - Legislation and Policies
      - Partnerships
      - Professional Development
      - Accountability and Evaluation Systems
      - College and Career Readiness Standards
      - Course Sequences
      - Credit Transfer Agreements
      - Guidance/Career Counseling & Academic Advisement
      - Teaching and Learning Strategies
      - Technical Skills Assessment
- Assess healthcare workforce needs by community type
  - ⦿ Inner city, urban, suburban, rural, frontier
- Assess post-secondary health science program options for articulation opportunities
  - ⦿ Dual credit enrollment, credit for prior achievement, program entry advantage

#### 2. Build a learning continuum Program of Study (POS)

- Adopt/adapt the National Healthcare Foundation Standards through a sequence of implementation strategies
- Provide career guidance for each student as part of the core coursework
- Introduce standards aligned implementation strategies
  - ⦿ Project based learning
  - ⦿ Integrated activities

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- Interdisciplinary curriculum
- Common core alignment
- Next generation science alignment
- Explore on-line learning options (particularly for the rural and frontier areas)
- Establish various levels of work-based and service learning opportunities
- Incorporate HOSA leadership into each health science Program of Study

3. Establish sustainable partnerships

- Create a teacher recruitment campaign as needed
- Evaluate teacher preparation/certification policy, specifically the new requirement for STEM integration
- Establish a Health Science Leadership Team
  - Include high school faculty (teachers and counselors), post-secondary faculty, healthcare industry and organization partners, state agency and labor representatives
  - Design and offer a professional development strategic planning seminar for the newly established statewide Health Science Leadership Team
    - Seek Program of Study content validation
    - Explore in-class and web-based learning options
    - Secure work-based and service learning placements
    - Evaluate articulation strategies/policies
- Build collaboration between the Health Science Leadership Team and statewide healthcare support groups
- Offer a sustained staff development program for the health science faculty (secondary and postsecondary partners) which can be duplicated throughout the state. The best practices gained by the BETA sites during the staff development and networking follow up will be shared and replicated at state sponsored conferences and other professional development events
  - Orientation to the implementation strategies
  - Explore middle school recruitment and learning continuum implementation
  - Offer an on-line learning tutorial
  - Build a health science faculty network (with secondary and postsecondary partners) for sharing best practices and resolving challenges

## **Findings**

The project process was completed between November 2014 and May 2015 under the guidance of Marianna Goheen, Washington State Health Science Supervisor with the assistance and support of two expert consultants, Scott Hess and Beverly Campbell, representing the National Consortium for Health Science Education (NCHSE).

Part 1: Gather baseline data

- **Assess current status of the district/area health science programs: Self-Assessment**

The NCHSE Career Pathways System: Readiness & Capacity Self-Assessment design framework component characteristics serve as a set of quality indicators to measure program of study implementation readiness and capacity, both at state and local levels.

To support states in developing Career Pathways, OCTAE issued a design framework. The framework contains 10 supporting components that are viewed by practitioners as instrumental for creating and implementing a high quality, comprehensive career pathway (program of study). The design framework provides quality assurance markers for states/districts/programs seeking to promote development of consistent career pathways to result in program improvement.

The 10 components of the Design Framework include:

1. **LEGISLATION AND POLICIES**--Federal, state, and local legislation or administrative policies promote development and implementation.
2. **PARTNERSHIPS**--Ongoing relationships among education, business, and other community stakeholders are central to design, implementation, and maintenance.
3. **PROFESSIONAL DEVELOPMENT**--Sustained, intensive, and focused opportunities for administrators, teachers, and faculty foster career pathway design, implementation, and maintenance.
4. **ACCOUNTABILITY AND EVALUATION SYSTEMS**--Systems and strategies to gather quantitative and qualitative data on both components and student outcomes are crucial for ongoing efforts to development and implement.
5. **COLLEGE AND CAREER READINESS STANDARDS**--Content standards that define what students are expected to know and be able to do to enter and advance in college and/or their careers comprise the foundation of a career pathway.
6. **COURSE SEQUENCES**--Non-duplicative sequences of secondary and postsecondary courses within a career pathway ensure that students transition to postsecondary education without duplicating classes or requiring remedial coursework.
7. **CREDIT TRANSFER AGREEMENTS**--Credit transfer agreements provide opportunities for secondary students to be awarded transcribed postsecondary credit, supported with formal agreements among secondary and postsecondary education systems.
8. **GUIDANCE COUNSELING AND ACADEMIC ADVISEMENT**--Guidance counseling and academic advisement help students to make informed decisions about which career pathway to pursue.
9. **TEACHING AND LEARNING STRATEGIES**--Innovative and creative instructional approaches enable teachers to integrate academic and technical instruction and students to apply academic and technical learning in their coursework.
10. **TECHNICAL SKILLS ASSESSMENTS**--National, state, and/or local assessments provide ongoing information on the extent to which students are attaining the necessary knowledge and skills for entry into and advancement in postsecondary education and careers in their chosen career pathway.

The self-assessment was distributed to districts across Washington. Fifty responses were received representing all community types including urban, suburban and rural, large and small schools and technical skill centers. The information gathered and compiled was referenced as the visits to the seven selected BETA sites were conducted for response validation.

Ratings ranged from “Do Not Know” to “Operational” defined as follows:

- “Do Not Know” signifies that the characteristic information is not available to the respondent.

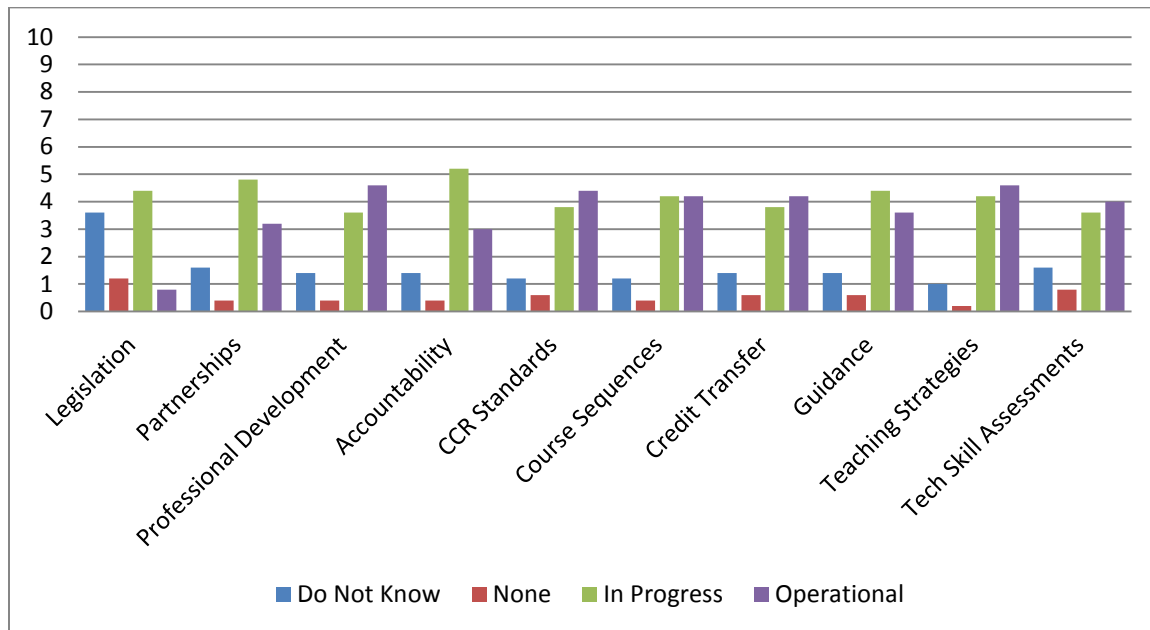
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- ⦿ "None" signifies the characteristic is not happening, does not exist, and/or you simply have no knowledge or information to verify.
- ⦿ "In Progress" signifies the characteristic is in initial phases, happening but not complete, or near completion/operational
- ⦿ "Operational" signifies the characteristic is fully implemented

The ratings were compiled and displayed in both numerical tables and graph charts. The results are summarized for Question 11 and Question 12 as indicated in the two displays that follow.

*Question 11 What do you consider to be the overall current status for each of the following components?*  
 Component 3 Professional Development (46%) and Component 9 Teaching and Learning Strategies (46%) ranked the highest in the Operational rating while Component 1 Legislation (36%) ranked the highest in the Do Not Know rating. Component 4 Accountability and Evaluation Systems (52%) ranked the highest for the In Progress rating follow by Component 2 Partnerships (48%).

**Q11 What do you consider to be the overall current status for each of the following components?**

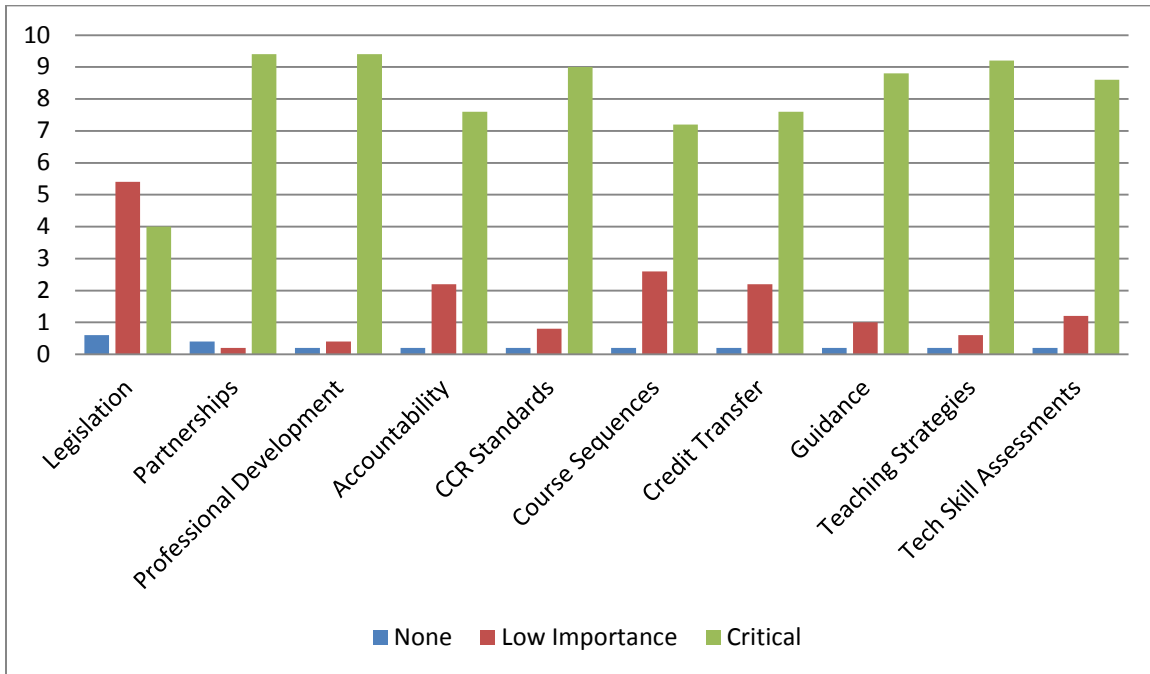


	Do Not Know	None	In Progress	Operational	Total
1. Legislation and Policy	36% (18)	12% (6)	44% (22)	8% (4)	50
2. Partnerships	16% (8)	4% (2)	48% (24)	32% (16)	50
3. Professional Development	14% (7)	4% (2)	36% (18)	46% (23)	50
4. Accountability and Evaluation Systems	14% (7)	4% (2)	52% (26)	30% (15)	50
5. College and Career Readiness Standards	14% (7)	6% (3)	38% (19)	44% (22)	50
6. Course Sequences	12% (6)	4% (2)	42% (21)	42% (21)	50
7. Credit Transfer Agreements	14% (7)	6% (3)	38% (19)	42% (21)	50
8. Guidance/Career Counseling and Academic Advisement	14% (7)	6% (3)	44% (22)	36% (18)	50
9. Teaching and Learning Strategies	10% (5)	2% (1)	42% (21)	46% (23)	50
10. Technical Skill Assessments	16% (8)	8% (4)	36% (18)	40% (20)	50

BUILDING A FOUNDATION PROGRAM OF EXCELLENCE

*Question 12 What do you consider to be the overall IMPORTANCE of each of the following career pathway framework components? Component 2 Partnerships (94%) and Component 3 Professional Development (94%) received the highest rating closely followed by Component 9 Teaching and Learning Strategies (92%) and Component 5 College and Career Readiness Standards (90%). Each component received a rating of more than 72% with the exception of Component 1 Legislation and Policies which was ranked the lowest in importance.*

**Q12 What do you consider to be the overall IMPORTANCE of each of the following career pathway framework components?**



	None	Low Importance	Critical	Total
<b>1. Legislation and Policy</b>	6% (3)	54% (27)	40% (20)	50
<b>2. Partnerships</b>	4% (2)	2% (1)	94% (47)	50
<b>3. Professional Development</b>	2% (1)	4% (2)	94% (47)	50
<b>4. Accountability and Evaluation Systems</b>	2% (1)	22% (11)	76% (38)	50
<b>5. College and Career Readiness Standards</b>	2% (1)	8% (4)	90% (45)	50
<b>6. Course Sequences</b>	2% (1)	26% (13)	72% (36)	50
<b>7. Credit Transfer Agreements</b>	2% (1)	22% (11)	76% (38)	50
<b>8. Guidance/Career Counseling and Academic Advisement</b>	2% (1)	10% (5)	88% (44)	50
<b>9. Teaching and Learning Strategies</b>	2% (1)	6% (3)	92% (46)	50
<b>10. Technical Skill Assessments</b>	2% (1)	12% (6)	86% (43)	50

The ratings for *Question 12* will guide the professional development and support needed to assist with building the capacity at the district and local sites to match the level of criticality ratings by response.



### Part 1: Gather baseline data

- **Assess current status of the district/area health science programs: BETA Site Review**

On-site visits to validate the results of the self-assessment reports and make a better determination as to the support that would be of most benefit for building a Health Science Program of Excellence for Washington State public secondary school adoption.

The results of both the self-assessment and the BETA site visits are presented in two categories: Observations and Recommendations for each of the 10 Framework Components. Based on information gathered, Washington State health science programs are to be recognized for the work achieved particularly in Partnerships, Professional Development, College and Career Readiness Standards and Teaching and Learning Strategies components.

The seven (7) BETA sites that received visits are:

1. **Evergreen School District – Clark County**
  - Clark College
  - Evergreen District
  - Hela High School
2. **Sumner School District – Pierce County**
  - Bonney Lake High School
  - Sumner High School
  - District College and Career Readiness
3. **WaNIC Skill Center – King County**
  - Skill Center
  - Lake Washington School District
  - Bellevue School District
4. **Everett School District – Snohomish County**
  - Everett School District CTE
  - Everett School District STEM
5. **Wenatchee High School – Chelan County**
  - Wenatchee High School
6. **Yakima Skill Center – Yakima County**
  - Allied Health Center of Excellence
  - Yakima Valley Community College
  - Yakima Valley Technical Skills Center
  - West Valley School District
7. **NEWTECH Skill Center – Spokane County**
  - Skill Center

The Washington State map, *Appendix 1*, displays the BETA site selection distribution. Different district/school configurations and healthcare workforce demands were considered to represent examples of each type; urban, suburban and rural communities. The information gleaned offered the guidance needed for building the Health Science Program of Excellence.

**BETA Site Observations and Recommendations**

Framework Component 1. LEGISLATION & POLICIES
<p><b>1. Legislation and Policies</b> Federal, state, and local legislation or administrative policies promote development and implementation.</p>
<p><b>Observations</b></p> <ul style="list-style-type: none"> <li>• There is insufficient funding available to support program of study (POS) implementation, career guidance, externships for teachers and substitute fees needed for these and other staff development.</li> <li>• There is lack of statewide policies for work-based learning, on-line/distance learning credit and content, POS health science credit for the Personalized Pathway Requirement (PPR) and equivalency credit for academic options, e.g., science.</li> <li>• There is need for a common consistent articulation policy between secondary programs, technical skills center and college programs including College in High School, dual credit and Running Start.</li> <li>• There is no consistent definition for STEM that includes health science for high school.</li> <li>• A middle school introductory level POS needs to be established and made available to help students with career decision-making.</li> <li>• There needs to be a statewide implementation of an “end of program” assessment to validate health science POS competencies.</li> </ul>
<p><b>Recommendations</b></p> <ul style="list-style-type: none"> <li>• State level funding should be introduced to subsidize POS implementation for high employing industry sector career pathways-health science currently meets the criteria according to statewide workforce demand status and projections.</li> <li>• Federal Perkins funds distribution should be weighted to recognize high demand industry sector career pathways-health science should be considered for increased funding to build POS’s.</li> <li>• These resources should be established by either legislative action or policy implementation to accomplish at least the following:             <ul style="list-style-type: none"> <li>○ Build access to health science programs for students in all schools through both on-site and virtual opportunities beginning with a middle school exploratory course transitioning to the high school health science foundation POS.</li> <li>○ Ensure health science faculty has current and accurate healthcare information consistent with practices and expectations to keep the POS up to date.</li> <li>○ Establish curriculum content and obtain or create resources (brochures, outlines, published materials) for the middle school exploratory course.</li> <li>○ Create a state level articulation committee with representatives from all levels of education involved to create a model blueprint for students transitioning from secondary programs to technical skills centers, community colleges and universities. The blueprint should determine how much credit should be given and for what content, then institute an inter-segmental policy to ensure individual programs adhere to the blueprint.</li> <li>○ Adopt an end of program assessment that will be accessible for all health science POS students upon completion of the coursework.</li> </ul> </li> <li>• Establish a working committee at the state level to create policies that all agree to:             <ul style="list-style-type: none"> <li>○ A STEM definition that includes the science based health science POS</li> <li>○ Work-based learning guidelines</li> <li>○ On-line/distance learning credit and content</li> <li>○ POS health science credit for the Personalized Pathway Requirement (PPR)</li> <li>○ Equivalency credit for academic options</li> </ul> </li> <li>• Seek Board of Education adoption of and support for the health science POS</li> </ul>

Framework Component 2. PARTNERSHIPS	
<p><b>2. Partnerships</b> Ongoing relationships among education, healthcare, and other community stakeholders are central to design, implementation, and maintenance for health science programs of study.</p>	
<p><b>Observations</b></p> <ul style="list-style-type: none"> <li>• Most sites have working partnerships in place, but they are uneven in their make-up and participation.</li> <li>• Technical skills center partners need to be included in partnerships where they are absent.</li> <li>• The role of healthcare industry and postsecondary partners is often unclear and needs to be expanded, e.g., validate curriculum, workplace learning opportunities, classroom participation.</li> <li>• Middle school and guidance faculty need to be included in advisory and other leadership groups.</li> <li>• High schools are often unable to provide adequate lab facilities for the programs due to the cost of equipment and supplies.</li> </ul>	
<p><b>Recommendations</b></p> <ul style="list-style-type: none"> <li>• Build a state level model for partnerships building on the success of the strongest examples for other sites to duplicate (Evergreen Partnerships and Yakima Partnerships are good examples).</li> <li>• Create formalized agreements for partnerships (advisory committees) at the local and state level to include membership group representation, meeting schedules (at least two times each year), and expected outcomes.</li> <li>• Broaden the scope of the advisory group membership to increase POS support by considering:</li> </ul>	
<p><b>Hospitals and Health Systems</b></p> <ul style="list-style-type: none"> <li>University medical centers</li> <li>For-profit healthcare systems</li> <li>Non-profit healthcare systems</li> <li>Specialized hospitals</li> <li>Health Maintenance Organizations</li> <li>Rehabilitation facilities</li> <li>Long-term or intermediate care facilities</li> <li>Veterans Administration hospitals</li> <li>Health services at home</li> <li>Clinics and Labs</li> </ul> <p><i>Purpose: Provide internships for students and teachers, in-class presentations, scholarships, mentors, guided study tours, job shadows</i></p> <p><b>Education Institutions</b></p> <ul style="list-style-type: none"> <li>Universities                             <ul style="list-style-type: none"> <li>Public</li> <li>Private</li> </ul> </li> <li>Community Colleges</li> <li>Technical Colleges/Skill Centers</li> <li>Area Health Education Centers (AHECs)</li> </ul> <p><i>Purpose: Establish articulated curriculum, dual credit, shared labs and classrooms, mentors, academic &amp; career advanced placement options</i></p> <p><b>State Agencies</b></p> <ul style="list-style-type: none"> <li>Department of Licensing</li> <li>Department of Health Services</li> </ul>	<ul style="list-style-type: none"> <li>Department of Education</li> <li>Healthcare Boards</li> </ul> <p><i>Purpose: Establish rules, regulations and policies that govern the program content, operations and evaluations</i></p> <p><b>Professional Organizations</b></p> <ul style="list-style-type: none"> <li>Rehabilitation</li> <li>Physical therapy</li> <li>Optometry</li> <li>Mental health</li> <li>Speech pathology</li> <li>Respiratory therapy</li> <li>Occupational therapy</li> <li>Medical</li> <li>Dental</li> <li>Pharmacy</li> <li>Biotechnology</li> <li>Rural Health</li> <li>School Nurses</li> <li>Healthcare Human Resources Administrators</li> </ul> <p><i>Purpose: Workforce demand, curriculum review, standards of practice, certification/ licensure information</i></p> <p><b>Community Healthcare</b></p> <ul style="list-style-type: none"> <li>Blood banks</li> <li>Radiology centers</li> <li>Dialysis centers</li> <li>Speech and hearing test mobile units</li> <li>American Medical Students of America (local chapters)</li> <li>Service groups</li> </ul> <p><i>Purpose: Internships, job shadows, scholarships, in-class presentations</i></p>

Framework Component 3. PROFESSIONAL DEVELOPMENT	
<p><b>3. Professional Development</b> Sustained, intensive, and focused opportunities for administrators, teachers, and faculty foster career pathway design, implementation, and maintenance.</p>	
<p><b>Observations</b></p> <ul style="list-style-type: none"> <li>• As with partnerships there are some good examples of professional development but it is not evenly distributed and available for all schools.</li> <li>• There is little professional development across education segments; middle school, secondary, postsecondary needed to build the learning continuum.</li> <li>• Information on equivalency and standards integration teacher teams (health science-Common Core Math and English-language arts and Next Generation Science) has not been part of professional development.</li> <li>• Counseling and guidance faculty are not included in current health science professional development.</li> <li>• Administrative staff does not participate in health science professional development to better understand the unique challenges and requirements of the subject area.</li> <li>• Any professional development needs to be relevant and meaningful; value added for time away from the classroom.</li> </ul>	
<p><b>Recommendations</b></p> <ul style="list-style-type: none"> <li>• Establish an annual health science “Summer Camp” at either a healthcare or university site to bring together new and experienced teaching teams for an orientation on the model that resulted from the BETA test (as described in Component 6. Course Sequence).</li> <li>• Include job shadows and guided study tours for the faculty teams to better understand the cross-curricular opportunities and help expand on and maintain skill currency in the rapidly changing healthcare industry sector, e.g., Electronic Health Records, Imaging practices.                             <ul style="list-style-type: none"> <li>Guided Study Tour: directs participants to examine through observation and interview the types and level of academic preparation necessary for the occupation, e.g., physical therapy procedures require high levels of math and science related to weights and measure, pressures, angles and anatomy and physiology. The results helps faculty determine what should be included in the POS whether stand-alone courses or interdisciplinary coursework.</li> </ul> </li> <li>• Create a “faculty network” across the education segments and region-county wide to participate in regularly scheduled sharing webinars to discuss challenges and successes and receive updates on new healthcare practices and regulatory changes. The webinars can also include interactive conversations with professional experts on new and innovative healthcare research or practices.</li> <li>• Incorporate a “Counselor Camp” strand into the Summer Camp convening. With more than 40,000 jobs listed in the Dictionary of Occupational Titles and more than 400 in healthcare, it is difficult for these professionals to be informed of the many opportunities and options available. When scheduling students they need to be aware of both the options and requirements for working in healthcare. In addition to student scheduling the counseling staff will become better healthcare consumers as they learn more about the sector.</li> <li>• Build a health science strand into annual state conferences to share teaching and learning strategies and healthcare practices updates.</li> <li>• Health science faculty can participate as presenters at academic and guidance organization conferences to demonstrate the potential for cross-curricular opportunities</li> <li>• Invite academic faculty, counselors, administrative staff, middle school faculty and students, postsecondary faculty and students to the annual HOSA State Leadership Conference as judges and “patients” to learn more about the career specializations</li> <li>• Explore a state policy that both sponsors and requires a specific number of professional development hours that are healthcare practices specific.</li> </ul>	

Framework Component 4. ACCOUNTABILITY AND EVALUATION SYSTEMS
<p><b>4. Accountability and Evaluation Systems</b> Systems and strategies to gather quantitative and qualitative data on both components and student outcomes are crucial for ongoing efforts to development and implement.</p>
<p><b>Observations</b></p> <ul style="list-style-type: none"> <li>• There is no formalized system in place to monitor and evaluate health science program outcomes such as information needed to promote articulation, impact of integrating health science, Common Core and Next Generation Science.</li> <li>• There is no statewide system to follow completers between the technical skills centers and postsecondary program entry and/or employment. Currently the data collected is most often based on health science faculty contact with their former students to seek informal information on progress to the next level of preparation or employment.</li> <li>• An end of program standardized assessment has not been state adopted to measure program content and student success.</li> <li>• Due to the lack of a formalized system in place data is not available to use results for program improvement, updates, expansion, discontinuance or further evaluation.</li> <li>• When new assessments are adopted there is not a formalized professional development program to help teachers with implementation</li> </ul>
<p><b>Recommendations</b></p> <ul style="list-style-type: none"> <li>• In reference to Component 1: Legislation and Policies Recommendations, data will be essential to underscore the need for subsidies to build new health science programs at all levels. Unless it can be substantiated that there is both a need for more courses, faculty, equipment, professional development, and so forth and successful programs are in place that can be updated or replicated it will be difficult to introduce and adopt these changes. It is likely new legislation or revision of Perkins funds distribution will demand increased accountability.</li> <li>• Build a state wide accountability system that includes a standardized end of program assessment to establish a baseline that programs must meet to receive continued support. The system should include at least adequate content and rigor to prepare students for postsecondary education and job entry, determine alignment to workforce demands, e.g., the Washington State College and College Career Readiness Expectations and data from <u><a href="#">A Skilled and Educated Workforce 2013 Update, A joint Agency Report</a></u>.</li> <li>• Implement the accountability measures in all schools offering a health science POS for comparison, to identify those programs with challenges, and to build on those programs demonstrating successful practices.</li> <li>• Use the accountability measures for new program start-ups to ensure they are designed to succeed.</li> <li>• Include postsecondary educators in the system design, often it is easier to use a backward mapping process whereby the colleges and technical skills centers report back to the high school on students entering, succeeding and completing health science coursework.</li> <li>• Partnering with WA Healthcare Human Resources Association can also assist with identifying students that are employed in healthcare and report on their career readiness upon entry.</li> <li>• Feedback from all sources should be integrated into the accountability system to determine the statewide achievement of the health science programs.</li> </ul> <p>Explore the Precision Exams National Health Science Assessment that measures the National Healthcare Foundation Standards, the basis for the POS <a href="http://healthscienceconsortium.org">http://healthscienceconsortium.org</a></p>

Framework Component 5. COLLEGE AND CAREER READINESS STANDARDS
<p><b>5. College and Career Readiness Standards</b>                      Content standards that define what students are expected to know and be able to do to enter and advance in college and/or their careers comprise the foundation of a career pathway.</p>
<p><b>Observations</b></p> <ul style="list-style-type: none"> <li>• Concern that the proposed POS will not align with the College and Career Readiness standards and the OSPI Framework.</li> <li>• Concern the POS may not align with the accountability measures when established.</li> <li>• There is no statewide POS consistency limiting transferability of credits and program achievement.</li> <li>• Concern POS will have limited value if not shared with postsecondary programs and healthcare industry representatives.</li> <li>• Questions as to how the POS standards and content will be delivered to students.</li> </ul>
<p><b>Recommendations</b></p> <ul style="list-style-type: none"> <li>• Complete a side by side comparison with the College and Career Readiness standards and the OSPI Framework as the health science POS sequence and content are built.</li> <li>• Accountability measures should be established and adopted that ensure direct correlation to the POS standards.</li> <li>• Establish the health science POS standards and content as the model to be locally adopted to increase opportunities for transferability of credits earned to the next level of preparation.</li> <li>• Include the establishment of a state leadership team and local advisory committees in the accountability measures (Component 6) with detailed responsibility to include the validation and interim re-validation of the Foundation Standards used as the basis for the POS</li> <li>• Complete a comparison study of health science programs in place to determine the scope of work needed to align these programs with the health science POS. Include the work needed in the request for added subsidies to bring each into alignment.</li> <li>• Explore opportunities to engage in collaborative efforts with the Area Health Education Centers (AHEC's) that share similar goals with the Washington health science POS. Though they primarily focus on professional level preparation they are aware that the pipeline programs need to be increased <a href="http://www.wwahec.org">www.wwahec.org</a>.</li> <li>• Access a variety of teaching strategies and resources that will help engage students in coursework and improve measurable achievement. Interdisciplinary activities and integrated curriculum projects along with work-based learning guidance directly aligned with the National Healthcare Foundation Standards as well as Common Core and Next Generation Science standards are available through the National Consortium on Health science Education <a href="http://healthscienceconsortium.org">http://healthscienceconsortium.org</a></li> <li>• Convene selected health science POS teachers that have demonstrated outstanding student achievement to create a Best Practices resource for new teachers and those wishing to revise or update their coursework.</li> <li>• Utilize the accountability measures to identify health science POS strengths and challenges and revise curriculum accordingly to ensure content prepares students for continued studies at the postsecondary level.</li> <li>• Explore using distance learning and simulations to accommodate "out-of-class" work-based experiences as needed. Deliver specialty presentations electronically for student access at all schools offering a health science POS.</li> </ul>

Framework Component 6. COURSE SEQUENCE
<p><b>6. Course Sequence</b>                      Non-duplicative sequences of secondary and postsecondary courses within a career pathway ensure that students transition to postsecondary education without duplicating classes or requiring remedial coursework.</p>
<p><b>Observations</b></p> <ul style="list-style-type: none"> <li>• Needs to be consistency across districts (statewide) to allow for student transition from one segment to another.</li> <li>• POS needs to begin with generalized foundations leading to more career specific content as part of the sequencing.</li> <li>• Some programs only offer career specific courses that lack a solid generalized foundation.</li> <li>• Administrative support is often lacking to support content sequencing rather than just one health science class.</li> <li>• Need consistent course titles with the same standards covered in those courses that help describe what is included in the content to build the articulation (sequencing) process.</li> </ul>
<p><b>Recommendations</b></p> <ul style="list-style-type: none"> <li>• Convene a team comprised of experienced health science faculty from the different education segments to build a model health science learning continuum that spans middle school, high school, technical skills centers and community college beginning with explorations leading to the foundation POS and career specific preparation. Include members from the State Leadership Team in the planning process to assist with identifying resources and support teams.</li> <li>• The seven BETA sites; representing both urban/suburban areas and rural/frontier areas can explore strategies specific to the environment, e.g., rural/frontier health practices or urban/suburban health practices.</li> <li>• Consider introducing healthcare career awareness in the elementary grades having students enrolled in the health science POS leading healthcare activities for the young students as part of their community/service learning experience. This will help the young students understand the many healthcare career options available while learning several good health practices.</li> <li>• Middle school explorations can be introduced in a similar fashion along with field trips to health science programs at the high school, technical skills center and community college that include a “job” shadow match up with students in the health science programs. These experiences will help middle school students begin the process of informed career decisions making.</li> <li>• The BETA sites can try out these strategies and share best practices from the experience with other health science programs.</li> <li>• The National Healthcare Foundation Standards included in the health science POS can also begin to be integrated into middle school coursework.</li> <li>• These same National Healthcare foundation Standards by title are offered throughout the course sequence learning continuum with more specificity and complexity as students prepare for career entry at the technical skills center, community college and university.                         <ul style="list-style-type: none"> <li>○ For example;                                 <ul style="list-style-type: none"> <li>Foundation Standard: <u>Communications</u> Demonstrate methods of delivering and obtaining information, while communicating effectively.</li> <li>Therapeutic Pathway Standard: <u>Intra Team Communication</u> Therapeutic services professionals will be able to communicate patient information among team members allowing for feedback as needed.</li> </ul> </li> </ul> </li> </ul>

Framework Component 7. CREDIT TRANSFER AGREEMENTS	
<p><b>7. Credit Transfer Agreements</b></p> <p>Credit transfer agreements provide opportunities for secondary students to be awarded transcribed postsecondary credit, supported with formal agreements among secondary and postsecondary education systems.</p>	
<p><b>Observations</b></p> <ul style="list-style-type: none"> <li>• State or local policies are not in place that establish guidelines and requirements for health science POS dual credit, Advanced Placement, College in High School and Running Start opportunities between high schools and postsecondary institutions.</li> <li>• Often students are required to re-take medical terminology and other coursework that they have previously achieved when they transition to postsecondary institutions.</li> <li>• Lack of a formalized agreement process often results in increased costs to both the student and the education funding source. Additionally, the time from entry to graduation is extended delaying opportunities to efficiently complete coursework and enter the healthcare workforce.</li> <li>• There is no state policy for equivalency credit for health science coursework counting towards a core course requirement, e.g., life science and lack of time for teachers to interact across subjects.</li> </ul>	
<p><b>Recommendations</b></p> <ul style="list-style-type: none"> <li>• As noted in the many workforce reports from the various Federal agencies and Washington State agencies and organizations the need for new and replacement healthcare professionals is a continuing concern. The lack of this highly skilled and educated workforce may jeopardize the health status of Washington’s citizenry if students aren’t “fast-tracked” to help meet the projected demand. Depending upon the specific career selected it will take from 5-12 years for students in grade 9 to complete the requirements for entry into practice.</li> <li>• A subset of the state level Course Sequencing team (Component 6) with representatives from high schools, technical skills centers, community colleges and universities should be convened to establish policies for granting health science POS credit, e.g., type of credit (equivalency, certificate or transfer), course(s) by title and content, amount of credit to be granted, faculty requirements and other considerations.</li> <li>• Once policies are set they need to be honored by all education institutions allowing for transferability from education segment to segment and among postsecondary education sites across the state.</li> <li>• A specific example; to complete college entry requirements for a career in healthcare, anatomy and physiology is an essential course. Many colleges may only offer one or two such courses creating delayed entry for students awaiting transition into their specialty coursework. To help correct the delay an A&amp;P articulation committee should be established comprised of college faculty that have authority to grant dual credit for the A&amp;P content included in the health science POS. The committee should complete a curriculum comparison process to determine if there is any unmet content or rigor that needs to be strengthened for the credit to be applied. Collectively make a recommendation to the Washington credit granting agency or commission or other approving agency for any restrictions to be eliminated.</li> <li>• A similar process should be considered for other coursework such as medical math, microbiology, life science, health education, and so forth. A study recently completed by Education Policy Improvement Center (EPIC) <a href="#">Career Pathway Programs in Health: Student Experiences</a>, using the Depth-of-Knowledge levels and the Common Core standards for both English-Language Arts and Math for the comparison revealed that the NHFS have alignment with and are recognized to enhance academic achievement of these standards. A state level committee should be established comprised of faculty that teach the health science POS, selected faculty that teach in the English-Language Arts and Math departments as well as Next Generation Science, particularly the Life Sciences to work with EPIC to implement recommendations for equivalency credit for the health science coursework.</li> <li>• All dual credit options should be explored to help students successfully complete their secondary coursework and enter the postsecondary level of preparation without repeating content previously mastered.</li> </ul>	



Framework Component 8. GUIDANCE COUNSELING & CAREER ADVISEMENT	
<b>8. Guidance Counseling &amp; Career Advisement</b>	Guidance counseling and academic advisement help students make informed decisions about which career pathway to pursue.
<b>Observations</b>	<ul style="list-style-type: none"> <li>• The quality and implementation of guidance counseling is inconsistent. For example; some students scheduled to attend a technical skills center health science program have very little guidance which often contributes to a higher than expected attrition rate.</li> <li>• Guidance counselors need more information on healthcare career options and the preparation needed to help guide students in planning for other than 4 year postsecondary education.</li> <li>• There is lack of a statewide 6 year program of study plan template which would assist counselors in guiding students. There is a particular gap in information available for middle school students and parents.</li> <li>• Ratio of counselor to student is too high and doesn't provide time for adequate counselor student interaction.</li> <li>• There needs to be better connections between guidance staff and CTE directors.</li> </ul>
<b>Recommendations</b>	<ul style="list-style-type: none"> <li>• Guidance counseling staff should be included in health science POS professional development to help them better understand the broad career choices in healthcare and the requirements for entry into these careers so they can assist students in course selection as needed.</li> <li>• Create brochures (electronic and printed) with healthcare career information, accompanying education requirements and locations where specialty coursework is offered. The AHEC's and healthcare professional organizations can assist by providing the data for the brochure. The information should be reviewed and updated on a regular basis to ensure accuracy.</li> <li>• In addition to Career Cruising a listing of web sites specific to healthcare careers such as the <a href="http://www.ExploreHealthCareers.org">www.ExploreHealthCareers.org</a> website needs to be created and made available to students beginning in middle school. An example of information on this site is the <u>Top 10 Reasons to Pursue a Health Career Now</u> refer to <i>Appendix 2</i> for a copy.</li> <li>• <a href="http://www.careervoyages.gov">www.careervoyages.gov</a> this website has detailed information for nearly every healthcare career including "In-Demand Occupations" and growth projections both nationally and for Washington State. Students will also find details on the education, licensure or certification needed for each career, pay scales and annual average openings as well as schools within the area that offer programs of preparation.</li> <li>• <a href="http://www.hosa.org/career/career_info_investigations">www.hosa.org/career/career_info_investigations</a> this website created by HOSA <i>Future Health Professionals</i> includes a link to the Commission on Accreditation of Allied Health Programs (CAAHEP), the organization responsible for accreditation of 18 different allied health programs. The Allied Health Careers section offers a link for occupational profiles and accredited institutions for the 18 programs they oversee.</li> <li>• Encourage participation of at least one guidance counseling representative from each school offering a health science POS at the Counselor Camp strand of Summer Camp as described in Component 3: Professional Development.</li> <li>• Establish a statewide 6 year individual career plan prototype for use at each school site. Begin planning as early as middle school.</li> <li>• Create a health science career counseling and guidance network for sharing new information as needed. Consider a monthly healthcare webinar or electronic newsletter (maybe featuring a counselor of the month, a career of the month, a student of the month and other information). This might be a good project for a college intern seeking a career in guidance counseling or healthcare human resources.</li> <li>• Build a model "bring a counselor to class" program to help introduce guidance counseling staff to the content complexity and rigor contained in the health science POS.</li> </ul>

Framework Component 9. TEACHING & LEARNING STRATEGIES	
<p><b>9. Teaching &amp; Learning Strategies</b></p> <p>Innovative and creative instructional approaches enable teachers to integrate academic and technical instruction and students to apply academic and technical learning in their coursework.</p>	
<p><b>Observations</b></p> <ul style="list-style-type: none"> <li>• There is no system in place for ensuring that health science teachers have been provided professional development activities on innovative teaching strategies.</li> <li>• Core academic and health science teacher collaboration is not a common strategy for health science programs and teachers from both programs have little time to collaborate.</li> <li>• The connection between HOSA leadership activities and teaching and learning strategies is not an integral part of most health science courses.</li> </ul>	
<p><b>Recommendations</b></p> <ul style="list-style-type: none"> <li>• Create a state level certificate of achievement for teachers who participate in a regional, on-line or Summer Camp professional development opportunity. Ask each participant to submit an activity, project or event to be compiled into a Best Practices collection. The collection can be available electronically and shared with all who participate.</li> <li>• Explore the options of college credit, recognition or other reward for participants receiving the certificate.</li> <li>• Incorporate project-based learning, work-based experiences, and other innovative teaching strategies into the design of the professional development convening. Resources are available through the NCHSE including those from the Publisher’s Coalition.</li> <li>• Use interdisciplinary activities from the NCHSE collection available on line to create cross discipline collaboration. These activities are also designed to build partnerships with college faculty and healthcare professionals. Interdisciplinary models have been noted to increase student academic achievement through applications and modeling while at the same time providing them with the college and career readiness skills and knowledge required for successful postsecondary entry, completion and subsequent employment.</li> <li>• Provide examples of school-wide or community-based projects that can be used to address healthcare needs such as reducing obesity or incidence of diabetes and offering information on access to healthcare to improve personal health status.</li> <li>• Work with postsecondary faculty and students as well as healthcare professional groups to plan and organize an annual <u>Health Science Education Recognition Week</u>. Choose a theme; (ex. “There’s a Health Career for Everybody”) create posters/banners for each school to display. Invite speakers to the classroom, invite the school board members to visit the class, create a demonstration for school teachers, counselors and administrators (ex. students can take faculty blood pressure at the beginning of the week and the end of the week and compare the results), ask the Governor to declare the week by proclamation, invite the local television station to publicize the weeks’ events, and other ideas. Great way to get program support.</li> <li>▪ Build a plan to bring parents as resources into the classroom.             <ul style="list-style-type: none"> <li>▪ When parents are involved, students achieve more, regardless of socio-economic status, ethnic/racial background, or the parents’ education levels.</li> <li>▪ In programs that are designed to involve parents in full partnerships, student achievement for the disadvantaged not only improves, it can reach levels that are standard...the children the farthest behind make the greatest gains.</li> <li>▪ ...senior high school students whose parents remain involved make better transitions, maintain the quality of their work, and develop realistic plans for their future.</li> <li>▪ Create work that is meaningful and consistent with partner expectations.</li> <li>▪ Formalize commitments.</li> <li>▪ Explore their healthcare professional background, experience and connections. Many parents work in healthcare and can be a great resource for speakers or work-based learning options.</li> </ul> </li> </ul>	

Framework Component 10. TECHNICAL SKILLS ASSESSMENTS
<p><b>10. Technical Skills Assessments</b>                      National, state, and/or local assessments provide ongoing information on the extent to which students are attaining the necessary knowledge and skills for entry into and advancement in postsecondary education and careers in their chosen career pathway.</p>
<p><b>Observations</b></p> <ul style="list-style-type: none"> <li>• Only want one assessment to measure the same standards for the health science secondary POS, students are now taking too many tests.</li> <li>• Don't duplicate assessments, e.g., tech-prep and Precision Exams, state should adopt one or the other.</li> <li>• Assessments need to include a certificate that is recognized by both the healthcare industry and postsecondary programs.</li> <li>• Assessment results should be used for program evaluation and improvement where needed not just to grade students achievement.</li> </ul>
<p><b>Recommendations</b></p> <ul style="list-style-type: none"> <li>• Healthcare is one of the most highly regulated and compliance oriented industry sectors. There is a "scope of practice" that determines what can be done and by whom. The skills allowed are to insure patient safety, practitioner safety and ensure quality of care. Each practitioner whether at the assistant, technical or professional level is expected to meet the scope of practice education, certification and licensure requirements before being employed.</li> <li>• Concurrently the demand for healthcare workers continues to increase in Washington State as well as the rest of the country. To help meet those demands and prepare students for additional coursework and the assessments that will be required as they approach completion of their studies and prepare for employment, it is essential the skills and knowledge they are achieving is measured by an assessment instrument that provides that data.</li> <li>• Incorporate the NCHSE on-line national assessment, currently managed by Precision Exams, into the health science POS. The assessment measures all of the NHFS that are the basis for the POS. The results are provided to local teachers with an item analysis that helps determine strengths and weaknesses in the course content, to state leaders for statewide program comparison and to measure achievement across states. Access to the assessment is available at <a href="http://healthscienceconsortium.org">http://healthscienceconsortium.org</a>.</li> <li>• Convene a discussion group comprised of the Washington State Healthcare Human Resources Association <a href="http://www.wshhra.org">www.wshhra.org</a>, other professional organizations and college admission representatives to inform them of the on-line assessment content and results. This information will let them know what students are learning and will help them recognize the certificate students receive when passing the assessment. The recognition may assist with internships, entry-level employment and job shadows or college placements. The Washington State Healthcare Human Resources Association (WSHHRA) is a state-wide membership organization made up of human resource professionals that are working in healthcare institutions or organizations. They are responsible for personnel functions at a variety of healthcare facility types. These professionals help determine the personnel needs and qualifications necessary for new employees.</li> <li>• State leaders and BETA site faculty should apply to present at the WSHHRA, college and other professional group conferences to share the health science POS, the accompanying assessment and resulting certificate.</li> <li>• Explore options for different career specific certificates available for students during or immediately following their health science POS. Ensure this information is available to teachers at the high schools.</li> </ul>

Part 1: Gather baseline data

- **Assess healthcare workforce needs by community type**

**Washington State Demographics**

**QUICK FACTS**

The information gathered and displayed provides a snapshot of the State's population distribution and health status as well as the healthcare workforce data and education program analysis. This information will influence the number and type of health science programs needed to ensure the future well-being of Washington's citizens.

**Population Total: 6,971,406**

**Healthcare Impact**

- |  |                 |                              |
|--|-----------------|------------------------------|
| • <5 years old (infant-preschool)      | 6.4% of total   | Pediatric care               |
| • 5-17 years old (school age)          | 16.4% of total  | Workforce replacement        |
| • 18-64 years old (primary work force) | 64.2 % of total | Current workforce            |
| • 65 + years old (primarily retired)   | 13.2% of total  | Early geriatric demand       |
| • 85 + years old (elderly)             | 1.8% of total   | Primary geriatric care users |

Washington's population distribution is close to the National averages in all categories

*Summary Statistics for All States, Health Resources and Services Administration (HRSA), State Comparison Tool, 2015*

**Health Status**

- Below National average mortality rates
- 9<sup>th</sup> in per capita expenditure for health & hospitals
- Four counties have 46% of 65 years and older with disabilities Therapy and custodial care

These four counties will require healthcare professionals specializing in care for this particular population

*Percentage of County Population Age 65 and Over With a Disability: 2008-2012, US Census Bureau*

**Conditions**

- Current and projected conditions
  - 9<sup>th</sup> out of 50 states in chronic disease due to:
    - increased % of pop. doing physical activity Fitness & personal trainers
    - reduced % of pop. regularly smoking
- Projected increase from 2003 to 2023 (in thousands)
  - Pulmonary Conditions (993-1390) Respiratory care
    - increased levels of air pollution
  - Hypertension (644-962) Cardiac specialists
    - high blood cholesterol
  - Mental Disorders (307-511) Rehabilitation & psychologist
    - use of illegal drugs

The state's current health status is above average but increased decline in some conditions is predicted

*An Unhealthy America: The Economic Burden of Chronic Disease, Milken Institute, 2007*

**Population Distribution**

**Future Workforce Candidates/Implications**

- 23 counties designated *Rural* (fewer than 100 persons per square mile)
- Seven counties designated *Frontier* (7 or fewer persons per square mile)
  - Columbia (4.6 persons) 157 students enrolled grades 9-12 (2014)
  - Ferry (2.9 persons) 250 students enrolled grades 9-12
  - Garfield (3.2 persons) 107 students enrolled grades 9-12
  - Lincoln (3.8 persons) 649 students enrolled grades 9-12
  - Okanogan (6.3 persons) 2184 students enrolled grades 9-12
  - Pend Oreille (6.4 persons) 559 students enrolled grades 9-12
  - Skamania (5 persons) 345 students enrolled grades 9-12
- Higher than average percentage of children and elderly Pediatric and geriatric care
- Lower than average percentage of working age adults Increase working population
- Typical industries lead to higher numbers of accidental injury (mining, forestry, farming) First responders/paramedics

These counties have fewer students available to enter the healthcare workforce. The use of on-line and distance learning options will allow for added program access for those interested in the healthcare sector. Rural and frontier communities also have unique healthcare requirements that should be considered when determining which programs to offer.

*Distressed Areas and Rural Counties in Washington, WSDOT-2012*

*Frontier Counties of the US, 2010, US Census Bureau*

*What's Different about Rural Healthcare? 2007-2012 National Rural Health Association*

**Healthcare Workforce**

- Projected demand across the healthcare workforce will increase by 31.4% between 2010-2020
- 40% of practicing RN's are 55 years or older, 10% are over 65
- 40% of practicing physicians are over 55 years of age
- Current and projected high demand occupations:
  - Registered Nurses (RN's)
  - Physician Assistants (PA's)
  - Nurse Practitioners (NP's)
  - Social Worker's
  - Psychologists
  - Physicians
  - Emergency Medical Technicians (EMT's) and Paramedics
  - Respiratory Therapists
  - Opticians (dispensing)

### BUILDING A FOUNDATION PROGRAM OF EXCELLENCE

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The increased demand, in the categories listed, are due to the combined impact of the implementation of the Affordable Care Act, pressures arising from the aging population, and the aging workforce nearing retirement. (This group may soon become healthcare users rather than healthcare providers)

*A Skilled and Educated Workforce 2013 Update, A Joint Agency Report: Washington Student Achievement Council, State Board for Community and Technical Colleges, Workforce Training and Education Coordinating Board*

- 10 counties have no Pediatricians
- Four counties have no hospital
- Two counties have no Primary Care Provider-two counties have 1 Primary Care Provider
- One county has no Physician Assistant-two counties have 1 Physician Assistant
- Two counties have no Nurse Practitioner-3 counties have 1 Nurse Practitioner
- Ten counties have no Certified Nurse Midwife
- More than 50% of First Responders in rural and frontier designated areas are volunteer

These data further underscore the current and continuing need to encourage students to consider a career in healthcare

*Healthcare Personnel Shortage Task Force, 2013 Annual Report, Washington Workforce*

*Healthcare Workforce: Future Supply vs. Demand, Robert Wood Johnson Foundation, 2011*

*State Health Resources Comparison Tool, HRSA, 2015*

*The Future of the Nursing Workforce: National- and State-Level Projections, 2012-2025, HRSA, 2014*

#### **Education Status**

- Number of high school graduates is 5% points above the National average
- Number of students receiving a bachelor's degree is 3% points above the National average
- 26.3% of students are enrolled in remedial English courses and 73.7% are enrolled in remedial math courses at the public baccalaureate institutions
- Health science high school students are from 5-12 years from career entry

*Summary Statistics for All States, HRSA, State Comparison Tool, 2015*

*What is the ethnic disaggregation of students enrolled in remedial courses offered by the public baccalaureate institutions? State of Washington Education Research & Data Center, 2010*

Although Washington is above average in high school graduation rates and the percentage of students receiving a bachelor's degree there remains a high percentage of students requiring remediation at the college level. Taking remediation coursework will further delay the time it will take for students to enter the healthcare workforce.

**Washington State Health Science Project implications:** offer a Program of Study designed to increase health science programs, improve high school student achievement in English and math to reduce/eliminate need for remediation, create strategies that engage students to "fast track" into and through healthcare preparation programs and enter the workforce

BUILDING A FOUNDATION PROGRAM OF EXCELLENCE

2. Build a learning continuum Program of Study (POS)

- **Adopt/adapt the National Healthcare Foundation Standards through a sequence of implementation strategies**

The Guiding Principles that were considered as the sample POS were created for consideration by the BETA site teams:

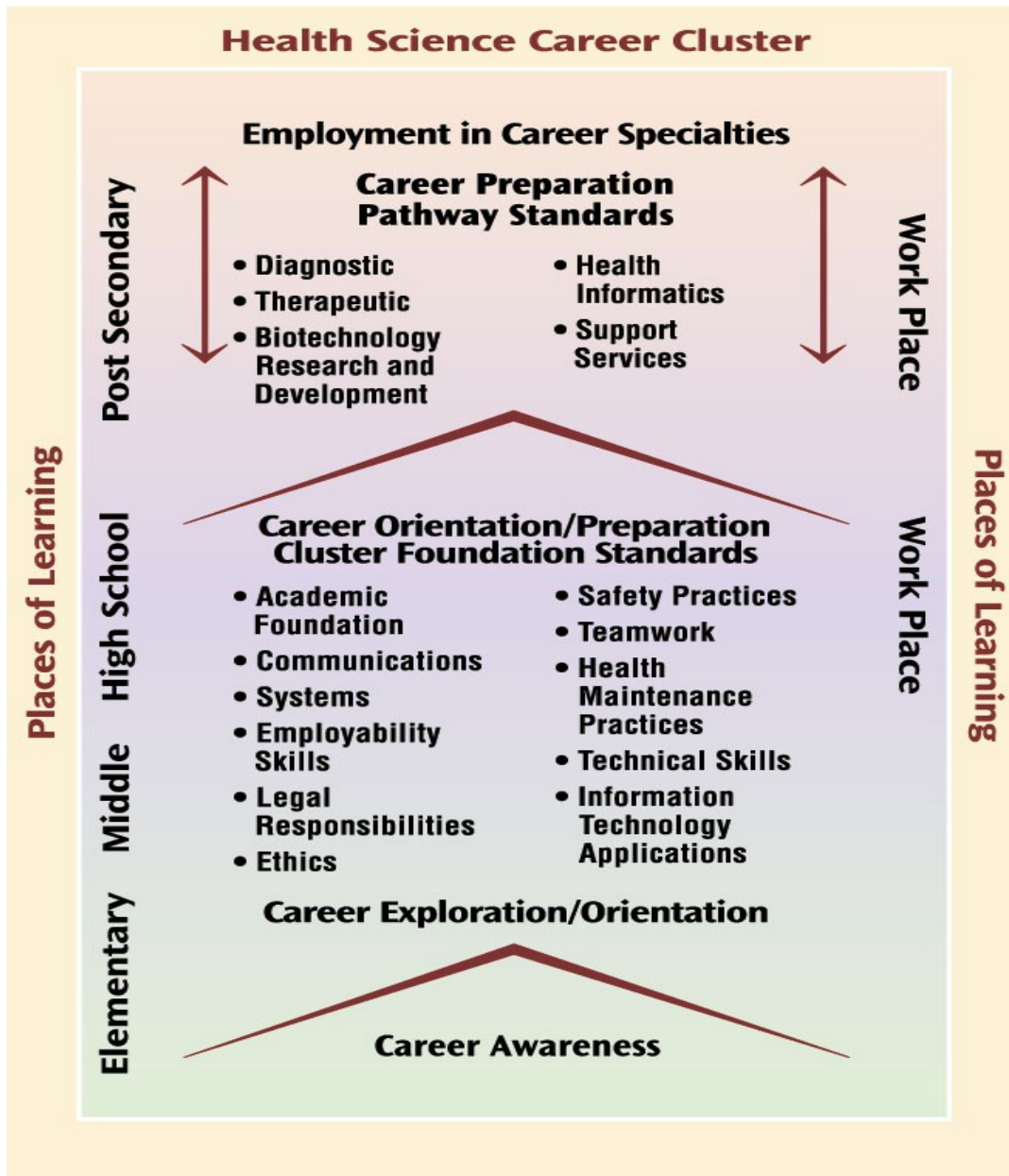
- Meet the Washington State 24 credit requirement
- Align to the National Healthcare Foundation Standards (NHFS), Common Core Standards for Math and English-language arts, Next Generation Science Performance Expectation, History-Social Studies and Career Development Standards
- Include problem/project-based and interactive learning
- Reflect sequential and age-appropriate instruction and work-based learning (WBL) experiences
- Emphasize health & wellness content and align to Physical & Health Education standards
- Integrate career development and professional employment skills
- Access outside support and resources as needed for expert healthcare advice and counsel
- Consider student career decision-making and accompanying education planning as the POS is implemented
- Explore a variety of options for POS course sequencing

The seven BETA site teams were representative of small schools, mid-size suburban schools, large urban schools and technical skill centers. Each must consider the adoption of a POS that will adhere to the new 24-Credit Graduation Requirements Pathways to Postsecondary adopted by the Washington State Board of Education. The listing of course requirements and options are displayed in the following chart:

Subject	Credits
English	4
Math	3
Science	3 (2 lab)
Social Studies	3
Career & Technical Education	1
Health & Fitness	2
Arts	2 (1 can be PPR)
General Electives	4
World Language or Personalized Pathway Requirement (PPR)	2 (both can be PPR)
<b>Total Credits</b>	<b>24</b>

### Health Science Learning Continuum

The NCHSE Health Science Learning Continuum was also considered as the POS sequencing options were formulated. The Health Science Learning Continuum was also referenced for building the Teaching and Learning Strategies particularly for Partnership Building and Work-based Learning.



The National Healthcare Foundation Standards and Accountability Criteria that describe each of the Career Orientation/Preparation Cluster Foundation Standards can be located at the NCHSE website <http://healthscienceconsortium.org>





#### Program of Study Standards Implementation Options

The *Health Science Program of Study* is based on a foundation set of standards that are common to all members of the healthcare community. The standards can be offered in a variety of options that are consistent with state, district and local course requirements and individual school site configurations. They may be spread across four years of study at a single site, at several locations, e.g., high school and skill center, across a learning continuum of stand-alone health science courses or integrated within in-place core curriculum. Several options are described for state, districts and local school sites to consider. The *Health Science Program of Study* also considers a number of teaching strategies that engage students in the learning process while ensuring achievement of the standards necessary for promotion to post-secondary preparation and job entry.

The *Health Science Program of Study* options are designed to:

- Align to the *National Healthcare Foundation Standards*, Common Core State Standards for Mathematics and English-Language Arts, Next Generation Science Performance Expectations and current standards for History-Social Studies and Career Development
- Include problem/project-based and interactive learning
- Reflect sequential and age-appropriate instruction and work-based learning experiences
- Emphasize health and wellness content and align to nationally recognized standards for Physical and Health Education
- Integrate career development and professional employment skills

To ensure the *Health Science Program of Study* meets current and projected post-secondary and entry-level employment expectations it is suggested that the standards are revalidated and revised as indicated by a statewide leadership team comprised of representatives with the expertise and interest needed for the task. State level support is also necessary to ensure there are adequate resources available to offer coursework that has the equipment and supplies to ensure there are opportunities for all students to “try things out” as they proceed through the learning continuum.

Support should also be established and maintained at the state level and through local partnerships to strengthen instruction. Drawing from the healthcare community and post-secondary faculty and students a variety of support can be provided including; in-class presentations and activity assistance, mentorships, shared labs, work-based learning locales and on-line learning. Job-shadow and professional development such as summer camps for high school teachers and counseling staff also helps ensure the program content is current and valid.

Building and maintaining the *Health Science Program of Study* based on a consistent foundation is a complex undertaking. But it is well worth the effort as the new healthcare workforce is established to meet the growing need for technicians and professionals across Washington. As noted previously, the basis for establishing the **Program of Excellence** is the *National Health Science Foundation Standards* as described below.

The *National Health Science Foundation Standards* were developed as one of twenty-two projects initially funded in 1991 through the U.S. Departments of Education and Labor. More than 3,000 representatives from the healthcare industry, healthcare professional organizations, labor and both secondary and post-secondary education assisted with the identification, content design and field test of the health science standards. The final form of the standards was adopted by the National Consortium for Health Science Education (NCHSE) in 1995.

The standards have since been revised and revalidated on three different occasions. See Table 1 for the most current iteration adopted May 2015. Intended as the foundation needed for all members of the healthcare community they are first offered in a generalized context and repeated in more specific context as the coursework becomes more career specific.

Ex: Healthcare Academic Foundations: Understand human anatomy, physiology, common diseases and disorders and medical math principles.

Biotechnology Research & Development Academic Foundations: Biotechnology R&D professionals will be knowledgeable in the fundamentals of biochemistry, cell biology, genetics, mathematical concepts, microbiology, molecular biology, organic chemistry and statistics.

Table 1

<p><b>1-Academic Foundations</b> Understand human anatomy, physiology, common diseases and disorders and medical math principles.</p>	<p><b>5-Legal Responsibilities</b> Describe legal responsibilities, limitations, and implications on healthcare worker actions.</p>	<p><b>9-Health Maintenance Practices</b> Differentiate between wellness and disease. Promote disease prevention and model healthy behaviors.</p>
<p><b>2-Communications</b> Demonstrate methods of delivering and obtaining information, while communicating effectively.</p>	<p><b>6-Ethics</b> Understand accepted ethical practices with respect to cultural, social and ethnic differences within the healthcare environment.</p>	<p><b>10-Technical Skills</b> Apply technical skills required for all career specialties and demonstrate skills and knowledge as appropriate.</p>
<p><b>3-Systems</b> Identify how key systems affect services performed and quality of care.</p>	<p><b>7-Safety Practices</b> Identify existing and potential hazards to clients, co-workers and self. Employ safe work practices and follow health and safety policies and procedures to prevent injury and illness.</p>	<p><b>11-Information Technology Applications</b> Utilize and understand information technology applications common across health professions.</p>
<p><b>4-Employability Skills</b> Utilize employability skills to enhance employment opportunities and job satisfaction.</p>	<p><b>8-Teamwork</b> Identify roles and responsibilities of individual members as part of the healthcare team.</p>	

Work-based Learning: As with the standards coursework, the work-based learning options become more specific and complex as students proceed through the program of study.

- Job shadows and explorations are aimed at introducing students to the variety of healthcare career options available. Guided study tours help students understand the academic preparation needed for each career selection.
- Leadership projects can be directed at using the knowledge and skills achieved through the standards introduction to create and lead a school-wide practice, such as creating a “Fitness Track” or working with school site food service staff to create lunch menus based on ethnically specific “Food Pyramids”. Both provide the health science students with leadership skill building while improving the health status of the school population.
- Internships, community service and service learning will provide the opportunity for students to “try out” those selected career options they find of interest. Virtual visits may replace any of the work-based learning experiences if the off-site option is unavailable.

**National Healthcare Foundation Standards Based Implementation Options**

**Option 1**

In Option 1 the standards are offered over two years of coursework distributed as suggested in Table 2. The standards are either grouped within stand-alone health science courses or integrated into appropriate core coursework. For example, Diseases & Disorders and Human Structure & Function may be integrated into life science courses such as anatomy & physiology. Medical Math standards might be integrated into Common Core Math coursework to adhere to the Modeling component of mathematical applications. Ethics and Legal Responsibilities might be offered through a social science course or courses. The distribution of the standards can be easily revised to better align with core coursework as appropriate to meet state, district and local requirements.

Year 1: All of the standards with the exception of Legal Responsibilities are offered at an introductory level.

Year 2: These same standards, with the exception of the exchange of Legal Responsibilities for the Ethics standards, are offered at a deeper and more contextual level adding more career specific practices and applications.

Table 2

<b>11<sup>th</sup> Grade-1<sup>st</sup> semester</b>	<b>11<sup>th</sup> Grade-2<sup>nd</sup> semester</b>	<b>12<sup>th</sup> Grade-1<sup>st</sup> semester</b>	<b>12<sup>th</sup> Grade-2<sup>nd</sup> semester</b>
2-Communications <i>Medical Terminology</i> 8-Teamwork 1-Academic Foundation <i>1.3-Medical Math</i> 3-Healthcare Systems 6-Ethics 4-Employability Skills  Work-based Learning Job Shadow Explorations Guided Study Tours	9-Health Maintenance Practices 1-Academic Foundation <i>1.3-Diseases &amp; Disorders</i> 1.2-Human Structure & Function 7-Safety Practices 10-Technical Skills 11-Information Technology Applications  Work-based Learning Community Service Service Learning Leadership Projects	2-Communications <i>Medical Terminology</i> 8-Teamwork 1-Academic Foundation <i>1.3-Medical Math</i> 3-Healthcare Systems 5-Legal Responsibilities 4-Employability Skills  Work-based Learning Internships Community Service Service Learning	9-Health Maintenance Practices 1-Academic Foundation <i>1.3-Diseases &amp; Disorders</i> 1.2-Human Structure & Function 7-Safety Practices 10-Technical Skills 11-Information Technology Applications  Work-based Learning Internships Community Service Service Learning

**Option 2**

Option 2 offers a series of courses that will incorporate the standards across the secondary learning continuum. This distribution takes into account the Washington State Board of Education newly adopted 24 unit graduation requirements suggested sequence of learning opportunities. The credit transfer options are to be further discussed and defined by a select faculty committee.

Consideration should be given to articulating the standards instruction between the high school and skill center as students pursue a specific career option, e.g., medical assistant, first responder, nurse assistant, sports medicine assistant, electronic health records specialist. The articulation allows the students to put into practice the standards as they are introduced. Applications tend to lead to a better understanding of the standards content and reinforce the necessity of learning the standards as a practicing healthcare provider. The articulation option is noted for grade 12 students in Table 3

- Skill Center content distribution: Foundation (240 class hours) + specific career (300 class hours)
- Secondary program integrated credit: 2.5 to 3.0 credits (includes Health requirement (0.5) and Science requirement for Graduation (1.0) and Occupational Education (1.0) Uses 0.5 of elective or career concentration

Table 3

High School/ Skill Center	9 <sup>th</sup> Grade	10 <sup>th</sup> Grade	11 <sup>th</sup> Grade	12 <sup>th</sup> Grade
<b>Course Title</b>	Career Survey .5 Awareness of healthcare	Health Science Health Ed. 0.5	Health Science Anatomy/Physiology 1.0 <i>(credit transfer)</i>	Health Science Employability/WBL .5 HIT .5
<b>Standards Distribution</b>	Job shadow, exploration, virtual visits	10-Technical Skills 7-Safety	1.1-Structure & Function	4-Employability
<b>Standards Distribution</b>		9-Health Maintenance	1.2-Diseases & Disorders	11-Information Technology
<b>Standards Distribution Career Specialization</b>		1.3 Medical Math 8-Teamwork	2-Communication	Options: Career Specialization that integrates the selected standards at the Skill Center
<b>College Credit Coursework</b>			3-Systems	<i>Or College in High School (credit transfer)</i>
<b>College Credit Coursework</b>			5-Ethics 6-Legal Responsibilities	<i>Or Dual Credit (credit transfer)</i>
<b>Work-based Learning</b>	<i>Job Shadow Explorations Guided Study Tours</i>	<i>Community Service Service Learning Leadership Projects</i>	<i>Internships Community Service Service Learning</i>	<i>Internships Community Service Service Learning</i>

BUILDING A FOUNDATION PROGRAM OF EXCELLENCE

**Option 3**

Option 3 offers a blueprint for the entire high school program as displayed in Table 4. Included are the *National Health Science Foundation Standards* offered in an organized learning continuum across the four year high school program. Age and grade appropriate work-based learning experiences are noted. The 24 units of coursework described in the newly adopted graduation requirements are incorporated into the blueprint design. The Personal Pathway Requirement (PPR) is met through the health science sequence coursework.

Rather than listing core courses, suggested Common Core English-language arts grades 9-10 and 11-12 standards and Common Core High School Math standards are listed as are Next Generation Science Disciplinary Core Ideas and Performance Expectations. The standards and performance indicators have been selected to best align with the *Health Science Program of Study*. Social Studies, Health and Fitness and Arts semester course options, and finally World Language is included as part of the program.

In addition to the creation of the *National Health Science Foundation Standards*, healthcare practices were organized into five pathways. These pathways; Biotechnology Research and Development, Therapeutic Services, Diagnostic Services, Health Informatics and Support Services are grouped by similar functions, work environments, direct and indirect patient care and outcomes. Each has a specific set of background skills and knowledge that enhances the foundation standards. Table 5 offers suggestions for senior year coursework that will strengthen secondary preparation aligned with the pathway students may find of most interest.

Table 4

Subject Area	9 <sup>th</sup> Grade	10 <sup>th</sup> Grade	11 <sup>th</sup> Grade	12 <sup>th</sup> Grade
Health Sciences Foundation Standards/ Personal Pathway Requirement	<i>Health Science Fundamentals</i> 2-Communications Medical Terminology 8-Teamwork 1-Academic Foundation 1.3-Medical Math	<i>Health and Safety Practices</i> 9-Health Maintenance Practices 1-Academic Foundation 1.2 Diseases and Disorders 1.1 Human Structure & Function 7-Safety Practices	<i>Healthcare Systems and Work-based Learning Preparation</i> 3-Healthcare Systems 6-Ethics 5- Legal Responsibilities 4-Employability Skills	Health Sciences <i>Research and Practice</i> 10-Technical Skills 11-Information Technology Applications Research Applications
Work-based Learning Experiences	<i>Job Shadow</i> <i>Explorations</i> <i>Guided Study Tours</i>	<i>Community Service</i> <i>Service Learning</i> <i>Leadership Projects</i>	<i>Internships</i> <i>Community Service or</i> <i>Service Learning</i>	<i>Internships</i> <i>Community Service, Service Learning, Volunteer Activity, Employment</i>
Language Arts/ Common Core Grades 9-10, 11-12 Standards	Reading for Literature Speaking & Listening	Reading for Informational Texts Writing	Reading for Literacy in Science & Technical Subjects	( <i>research paper on medical advancement topic</i> ) Writing for Literacy in Science & Technical Subjects
Mathematics/ Common Core High School Standards	Number & Quantity/Algebra	Functions/Geometry/Modeling	Statistics & Probability	*Pre-calc/Trig, *Calculus, *Trigonometry(optional)
Science/Next Generation Disciplinary Core Ideas & Performance Expectations	Life Sciences: Biological Evolution: Unity & Diversity	Life Sciences: From Molecules to Organisms: Structures & Processes	Life Sciences: Ecosystems: Interactions, Energy & Dynamics Heredity: Inheritance & Variation of Traits	*Microbiology, *Biotechnology, *AP Physics, *Anatomy & Physiology for healthcare practices (optional)
Social Studies	U.S. History	World History/Geography & Cultural Practices	U.S. Government/Civics	Economics/Psychology
Health & Fitness/Arts (semester classes)	Health & Fitness/Arts	Health & Fitness/Arts	Health & Fitness/Arts	Health & Fitness/Arts
World Language			World Language	World Language

Note: The course sequence is suggested and may be reconfigured based on local course taking patterns, district requirements and organization of the school schedule

**Health Science Pathway Options:**

Variance in student interest, course availability, and local economic conditions may determine pathway options. These career pathways are grouped by similar healthcare work environments, applications, processes and procedures. Instruction for pathway specific preparation most often occurs at a technical school/skill center, college or university.

The pathways are:

**Therapeutic Services: Occupations or functions primarily involved in changing the health status of the patient over time.**

Standards by title: client interaction, intra team communication, information collection, treatment planning and implementation, monitoring client status, patient and other client status evaluation

**Diagnostic Services: Occupations or functions primarily involved in creating a picture of the health status of the patient at a single point in time.**

Standards by title: multidisciplinary communication, assessment of patient and other client status, patient and other client movement, patient and other client interaction, preparation, procedure, evaluation and reporting

**Biotechnology Research and Development: Occupations and functions primarily involved in biotechnology research and development that applies to human health.**

Standards by title: contributions of biotechnology to health and the human condition, academic foundations, introduction to biotechnology knowledge areas and techniques, laboratory protocols and procedures, product design and development, bioethics

**Health Informatics: Occupations or functions that document, retain and distribute patient care data.**

Standards by title: communication, analysis, abstracting and coding, information systems, documentation, operations

**Support Services: Occupations or functions involving direct or indirect patient care that creates a therapeutic environment for providing that care.**

Standards by title: operations, aseptic procedures, resource management, aesthetics

**Table 5 Recommended senior course options for each pathway**

<b>Therapeutic Services</b>	<b>Diagnostic Services</b>	<b>Biotechnology Research</b>	<b>Health Informatics</b>	<b>Support Services</b>
*12 <sup>th</sup> grade enhancements <ul style="list-style-type: none"> <li>• Calculus or Pre-Calc/Trig</li> <li>• Anatomy &amp; Physiology</li> <li>• Microbiology</li> <li>• Psychology</li> </ul>	*12 <sup>th</sup> grade enhancements <ul style="list-style-type: none"> <li>• Calculus or Pre-Calc/Trig</li> <li>• AP Physics</li> <li>• Anatomy &amp; Physiology</li> <li>• Microbiology</li> <li>• Psychology</li> </ul>	*12 <sup>th</sup> grade enhancements <ul style="list-style-type: none"> <li>• Calculus or Pre-Calc/Trig</li> <li>• AP Physics</li> <li>• Anatomy &amp; Physiology</li> <li>• Microbiology</li> <li>• Biotechnology</li> </ul>	*12 <sup>th</sup> grade enhancements <ul style="list-style-type: none"> <li>• Accounting</li> <li>• Economics</li> <li>• Psychology</li> </ul>	*12 <sup>th</sup> grade enhancements <ul style="list-style-type: none"> <li>• Calculus or Pre-calc/Trig</li> <li>• AP Physics</li> <li>• Microbiology</li> </ul>

\*To ensure the course content has the rigor needed to meet postsecondary program expectations, it is recommended that these courses are developed in collaboration with postsecondary partners and are made available for dual credit, advanced placement, college in high school or as concurrent enrollment.

**3. Establish sustainable partnerships: Establish a Health Science Leadership Team**

- Include high school faculty (teachers and counselors), post-secondary faculty, healthcare industry and organization partners, state agency and labor representatives
- Design and offer a professional development strategic planning seminar for the newly established statewide Health Science Leadership Team
- Seek Program of Study content validation
- Explore in-class and web-based learning options

A core group of state leaders was convened and introduced to the project and process at the Leadership Team Forum, March 3, 2015. Input on the skills and knowledge needed for career entry or post-secondary preparation was solicited and recorded. See *Appendix 3* for the listing. The core leadership team includes representatives from;

- WA Dept. of Health Rural Health Programs
- Clark College, Community and Technical Colleges,
- Dept. of Health Nursing Commission
- State Board for Community and Technical Colleges (SBCTC) Policy Associate
- Western Washington Area Health Education Center (WA-AHEC)
- Project Lead the Way
- WA State Nurses Association
- US Senator Patty Murray's office
- Workforce Training Board
- WA Dept. of Health
- Catholic Healthcare West (CHW) Training Program Supervisor
- Pharmacy Quality Assurance Commission
- Allied Health Center of Excellence
- Microsoft
- WA State Board of Education

The recommendations from the Leadership Team will be used by NCHSE to update the National Healthcare Foundation Standards as appropriate. Refer to the Partnership Commitment Agreement form in *Appendix 4*.

The Leadership Team membership will be expanded to include BETA site representatives and will be reconvened on several occasions throughout the year. Additional partnership support will be solicited and agreements confirmed.



BUILDING A FOUNDATION PROGRAM OF EXCELLENCE

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**3. Establish sustainable partnerships: Offer a sustained staff development program for the health science faculty (secondary and postsecondary partners) which can be duplicated throughout the state.**

The best practices gained by the BETA sites during the staff development and networking follow up will be shared and replicated at state sponsored conferences and other professional development events. The BETA sites received a Network Profile form to complete and share among the site teams and with the Health Science State Supervisor. Each site team will be responsible for assisting to collaborate with/mentor 3-5 additional sites.

**Washington State Health Science  
BUILDING A PROGRAM OF EXCELLENCE  
BETA Site  
Network Profile**

SCHOOL NAME: ADDRESS:
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DESCRIPTION (9-12 enrollment, community type; rural, urban, suburban, program configurations; academy-based, magnet, comprehensive, pathways):
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STRENGTHS (briefly describe each that is in place): <ul style="list-style-type: none"><li>• Health science foundation standards implementation</li><li>• Project-based learning</li><li>• Interdisciplinary curriculum</li><li>• Common core (math/ELA) connections</li><li>• Next Generation Science connections</li><li>• Work-based learning</li><li>• Leadership skills (HOSA member)</li><li>• On-line/distance learning</li></ul>
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WHAT VISITORS SHOULD EXPECT TO SEE (briefly describe):
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LIST COLLABORATION/MENTOR SITES (3-5):
--

CONTACT: NAME:	TITLE:
PHONE:	EMAIL:

SEND A COPY TO: MARIANNA GOHEEN, HEALTH SCIENCE PROGRAM SUPERVISOR via EMAIL: Marianna.goheen@k12.wa.us FOR QUESTIONS CONTACT MARIANNA via EMAIL OR PHONE: 360.725.6257
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**BUILDING A FOUNDATION PROGRAM OF EXCELLENCE**

The BETA site teams participated in a staff development day May 12, 2015 at which time they were introduced to a number of teaching strategies directly related to and supportive of the National Healthcare Foundation Standards. They received a flash drive that included the information presented in this report as well as a power point presentation. The item list is attached to this report as *Appendix 5*. The strategies were presented as described; Integrated Activities, followed by a sample Interdisciplinary Curriculum Unit, Workplace and Service Learning Guidelines and the Leadership Enhancement Instructional Materials. A briefing on each component follows.

• **Introduce standards aligned implementation strategies: Integrated Activities**

The integrated activities that are included on the flash drive demonstrate alignment with:

- National Healthcare Foundation Standards
- Common Core English-language arts
- Common Core mathematics
- Next Generation Science
- Social Science
- Health Education
- Physical Education
- Career Development

Foundation Standard #	Integrated Activities by Title and Subject Alignment
1. Academic Foundation <ul style="list-style-type: none"> <li>● Anatomy &amp; Physiology</li> <li>● Diseases &amp; Disorders</li> <li>● Medical Math</li> </ul>	<p><b>MEASURING BODY ANGLES</b>                      Math-Modeling with Geometry                      Use geometric shapes, their measures and their properties to describe objects</p> <p><b>THE RAIN FORESTS AND PHARMACEUTICALS</b>                      Science-Core Ideas in the Life Sciences                      Interdependent Relationships in Ecosystems                      Math-Reasoning with Equations and Inequalities</p> <p><b>ACID-BASE BALANCE</b>                      Science-Core Ideas in the Physical Sciences                      Math-Creating Equations</p>
2. Communications	<p><b>HEALTHCARE FOR NATIVE LANGUAGE SPEAKERS</b>                      ELA-Reading for Literacy in Science and Technical Subjects</p>
3. Systems	<p><b>COMMUNITY HEALTHCARE SYSTEMS</b>                      Social Science-Civics &amp; Government                      Health Education- Health Education-Access Valid Health Information and Health-promoting Products and Services</p>
4. Employability Skills	<p><b>PREPARING FOR HEALTHCARE SUCCESS</b>                      ELA-Writing for Literacy in History/Social Studies, Science and Technical Subjects                      Science-Core Ideas in Life Sciences</p>
5. Legal Responsibilities	<p><b>CREATING HEALTHCARE LEGISLATION</b>                      Social Science-(grade 9-12 I.A) Civics and Government</p>
6. Ethics	<p><b>CODE OF ETHICS</b>                      Social Science-Civics and Government                      ELA-Writing for Literacy in History/Social Studies, Science and Technical Subjects</p>
7. Safety Practices	<p><b>WORK-RELATED INJURY PREVENTION</b>                      Health Education-Health Promotion and Disease Prevention</p>

BUILDING A FOUNDATION PROGRAM OF EXCELLENCE

	ELA-Writing for Literacy in History/Social Studies, Science and Technical Subjects
8. Teamwork	<b>DETERMINING BURN SURFACE</b> Math-Modeling with Geometry Use geometric shapes, their measures, and their properties to describe objects
9. Health Maintenance Practices	<b>CHILDHOOD COMMUNICABLE DISEASES</b> ELA-Writing for Literacy in History/Social Studies, Science and Technical Subjects Science-Core Ideas in Life Sciences
10. Technical Skills <ul style="list-style-type: none"> <li>• First Aid/CPR AED/FBOA</li> <li>• Vital Signs</li> </ul>	<b>CPR AND BASIC FIRST AID</b> Health Education-Practice Health-enhancing Behaviors and Reduce Health Risks Physical Education-(grade high school) Applies Movement Concepts and Principles to the Learning and Development of Motor Skills <b>DETERMINING PULSE AND RESPIRATION</b> Math-(grade high school S-ID.2) Statistics and Probability
11. Information Technology Applications	<b>EHRs INFORMATION ACCESS</b> Science-(ETS2.B) Core Ideas in Engineering, Technology, and Applications of Science

Elementary/Middle School	Integrated Activities
7. Safety Practices	<b>MICROORGANISMS IN CUTS AND SCRAPES</b> Science-(LS1.B) Core Ideas in the Life Sciences Growth and Development of Organisms Health Education-(grade k-4 1.8) Health Promotion and Disease Prevention
2. Communications	<b>MAKING AN EMERGENCY CALL</b> ELA-(LS grade 2.5.a) Language Identify real-life connections between words and their use Health Education-(K-4 7.1) Advocate for Personal, Family & Community Health
1. Academic Foundation <ul style="list-style-type: none"> <li>• Diseases &amp; Disorders</li> </ul>	<b>EFFECT OF SMOKING ON LUNG CAPACITY</b> Health Education-(grade 5-8 1.1) Health Promotion and Disease Prevention Explain the relationship between positive health behaviors and the prevention of injury, illness, disease and premature death Science-(LS1.B) Core Ideas in the Life Sciences
4. Employability Skills	<b>CREATING AN ATTITUDE CONTRACT</b> Social Science-(grade K-4.1) National Standards for History/Social Sciences Living and working together in families and communities, present and past ELA-(grade 5.5) Speaking and Listening
1. Academic Foundation <ul style="list-style-type: none"> <li>• Anatomy &amp; Physiology</li> </ul>	<b>RESPIRATION AND TEAM SPORTS</b> Physical Education-(middle school 4) Achieves and Maintains a Health-enhancing Level of Physical Fitness Acquire a greater understanding of the fitness components, how each is developed and maintained, and the importance of each in overall fitness Math (grade 8.F.4) Functions
1. Academic Foundation <ul style="list-style-type: none"> <li>• Medical Math</li> </ul>	<b>CALCULATING PHARMACEUTICALS</b> Math-(grade 7.RP.3) Ratios and Proportional Relationships Use proportional relationships to solve multistep ratio and percent problems Science-(LS1.D) Core Ideas in the Life Sciences Information Processing

- **Introduce standards aligned implementation strategies: Interdisciplinary Curriculum**

Cultural Differences in Healthcare Practices is the sample shared for creating horizontal curricular teams across the program subjects and building partnerships with postsecondary partners and healthcare industry representatives. The Unit Overview follows:



## Unit Overview

### Cultural Differences in Healthcare Practices

#### Essential Question:

**How can cultural healing practices be integrated into Western medicine to serve the best interest of the patient?**

### BACKGROUND

Lack of awareness about cultural differences regarding healthcare practices can make it difficult for both providers and patients to achieve the best, most appropriate care. Despite all our similarities, fundamental differences among people arise from nationality, ethnicity, and culture, as well as from family background and individual experiences. These differences affect health beliefs, practices, and behavior on the part of both patient and provider, and also influence the expectations that patient and provider have of each other. Often in the medical community (and the community in general) there is lack of awareness of these differences and their impact. This may result from a combination of factors that may include:

- Lack of knowledge - resulting in an inability to recognize the differences
- Self-protection/denial - leading to an attitude that these differences are not significant, or that our common humanity transcends our differences
- Fear of the unknown or the new - because it is challenging and perhaps intimidating to get to understand something that is new, that does not fit into one's world view
- Feeling of pressure due to time constraints - which can lead to feeling rushed and unable to look in depth at an individual patient's needs

Patient-provider relationships are affected when understanding of each other's expectations is missing. The provider may not understand why the patient does not follow instructions: for example, why the patient takes a smaller dose of medicine than prescribed (some believe that Western medicine is "too strong"); or why the family, rather than the patient, makes important decisions about the patient's healthcare (in some cultures major decisions are made by the family as a group). Likewise, the patient may reject the provider (and the entire system) even before any one-on-one interaction occurs because of non-verbal cues that do not fit expectations. For example, "The doctor is not wearing a white coat - maybe he's not really a doctor; or, "The doctor smiles too much. Doesn't she take me seriously?"

### UNIT CONTENT

The unit titled **Cultural Differences in Healthcare Practices** provides an opportunity for students considering a career in healthcare, to learn how different practices, behaviors and attitudes influenced by culture impact patient outcomes. In addition they will learn the history of a number of different cultural healthcare practices of recent immigrants to the United States and how those practices from their native country affect their views.

Interdisciplinary research and exploration activities include medical (health) science, chemistry, English, geometry, algebra, world history, world geography, world language and physical education.

Healthcare partners from large facilities, small clinics and labs can provide expert support to enhance the content based on actual case studies that will lend credence to the importance of the students gaining knowledge in the area of cultural competence. These partners will also ensure the information presented reflects the most current practices and procedures taking place in various healthcare settings.

Healthcare professionals to be considered include:

- A diversity coordinator that provides cultural competence training to the healthcare staff
- An interpreter
- An acupuncturist
- A Chinese herbalist
- An Asian bodywork therapist
- An ethicist
- An endocrinologist
- A neurologist
- A holistic and naturopathic specialist
- A nurse practitioner, physician assistant or medical doctor with experience serving patients' from diverse cultural groups

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- **Introduce standards aligned implementation strategies: Workplace Learning and Leadership**

The three part **Workplace Learning Guidance Packet** designed to help faculty prepare students for a variety of experiences beyond the classroom setting. They include:



## WORKPLACE LEARNING

### Guidance Packet

Section 1: Workplace Learning Preparation and Guidelines prepares the student with information expected by the healthcare facilities; Legal Responsibilities such as Scope of Practice and Confidentiality; Ethical Behavior that addresses teamwork, cultural competence, professional image and attitude; Safety Practices specific to the environment such as fire safety, codes, infection control and body mechanics. Completing the instruction included in Section 1 and passing the assessment included in the appendix with at least a 75% score will help ensure the student is well prepared for the on-site experience.

Section 2: Career Explorations and Assessment informs the Workplace Coordinator of the preparation necessary to help the facilities and students prepare for the workplace learning experience including; Legal Requirements and an affiliation agreement that describes the agreed upon role and responsibility of both the workplace partner and the school. Also included in this section are the necessary forms that must be completed by each student prior to participation, several must be signed by the student and the parent/guardian, education agency and workplace site.

The bulk of Section 2 includes 23 Specialty and 13 Subspecialty Rotation packets. Each includes specific specialty objectives, what students should expect to see in the department and a suggested list of questions they may wish to ask. There is also a Sample Student Questionnaire; one copy with answers and one copy without. Finally there is a Student Evaluation form and Staff Evaluation form that rates the experience from both points of view. These Specialty Rotation packets are to be shared with the workplace learning sites for review and approval. Prepared by a group of healthcare professionals in collaboration with professional health science educators, these packets have been found to be very helpful in designing and evaluating the students' experience.

Section 3: Service Learning for the Health Sciences: Basic Elements and Project Development, provides the detail needed to establish programs that are meaningful for both the students and the community they serve. Included in Section 3 are units that offer definitions, and describe expected outcomes, Components of Service Learning, Standards of Quality Service Learning Practice and an extensive list of resources and websites for further research.



*Inspire, Influence and Motivate*

## **Leadership Enhancement Instructional Materials** **OVERVIEW**

The **Leadership Enhancement Instructional Materials** (LEIM) are designed as a three part process. Each part offers a number of strategies and resources from which to choose when implementing the different parts. LEIM may be offered in any configuration that best aligns with the program of instruction and can range from several class periods per leadership activity or can be offered over an entire semester or school year.

LEIM is intended to strengthen leadership skills building on those skills that are part of the HOSA program. The three parts should be organized in the order presented building from individual leadership, to whole school leadership culminating in a community service leadership project.

Each of the three parts include handouts, references and resources and show the alignment with one or more of the National Healthcare Foundation standards and the Common Core English Language Arts and Mathematics standards as appropriate.

### Part I: LEADERSHIP THEORY AND PRACTICE

This part focusses on self-awareness and goal setting. Information is offered on defining leadership skills and behaviors by reviewing [descriptions of the three leadership elements](#); *Inspire, Influence and Motivate*, and by identifying successful leaders. Students assess their own skills through a [Leadership: How Do I Rate](#) self-awareness evaluation instrument and complete a [Goal Setting Form](#) that will guide their leadership development. They participate in one or more of the leadership skill building activities provided in the content. Or other activities may be selected or added as appropriate by the teacher/advisor.

[Short Persuasive Elevator Pitch](#)  
[Reflecting on Personal Leadership Experiences](#)  
[Building a Legacy](#)  
[What You Want Others to Know About You](#)  
[What Would You Do Scenarios](#)

### Part II: IMPROVE HEALTH PRACTICES SCHOOL WIDE CAMPAIGN

In Part II students test their leadership abilities and build teamwork skills while planning and leading a school wide campaign to help create healthy habits. The campaign can be selected from those offered or another idea that students may find of more interest. When planning the campaign they will consider the [Culminating Event](#), create a [Timeline](#), and review the [Rubric](#) that will be used to assess the process and results of their work.

[Create a Fitness Track](#)  
[How to Keep a Food Journal](#)  
[Ethnic Food Pyramids Awareness](#)  
[Fitness Breaks Have Advantages](#)  
[Gets Fit: A Wellness Project](#)

### Part III LEADERSHIP THROUGH COMMUNITY SERVICE

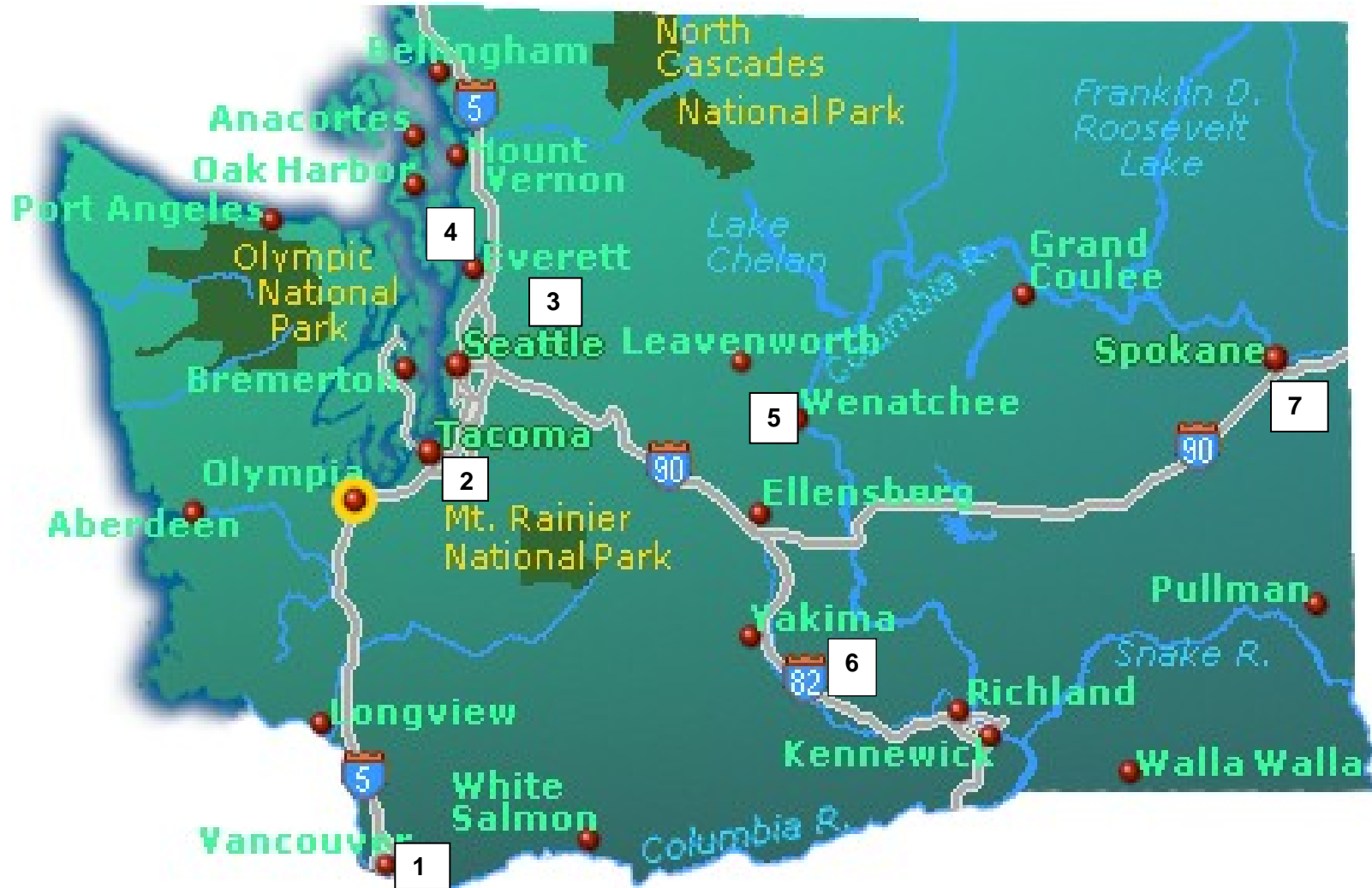
The final part takes the students beyond the school campus into the community where they can practice both their leadership and team building skills with a different audience and in a different setting. As they prepare the community service project they will review the [Introducing Community Services](#) handout for a better understanding of the purpose and value of this experience. They will select a project from the [Community Services Activities List](#) or propose a different activity that may be more appropriate for the audience and community to be served. They will also reflect back on their personal [Leadership: How Do I Rate](#) assessment results to see what role may help them build areas that need strengthening as they determine their individual [Roles and Responsibilities of Each Team Member](#). In this part students will review the [Assessment Rubric](#) that will be used to determine their team and individual leadership growth and achievements.

Each item in blue font with an underline is included with the content for each part of the LEIM complete with handouts, forms, references and resources.

# APPENDIX

### Health Science Program of Excellence BETA Sites

- |  |  |
|--|--|
| 1-Evergreen School District - Clark County   | 2-Sumner School District - Pierce County     |
| 3-Lake Washington Skill Center – King County | 4-Everett School District – Snohomish County |
| 5- Wenatchee School District – Chelan County | 6-Yakima Skill Center - Yakima County        |
| 7-NEWTECH Skill Center - Spokane County      |  |





According to the ExploreHEALTHCareers.org website they might consider the following:

## **Top 10 Reasons to Pursue a Health Career Now**

### ***You'll earn a good salary***

Okay, salary *is* important. The good news is health workers make very good money. The average entry-level health worker earns from \$15 to \$50 per hour. The more experience and training you get in your field, the more money you can make. Wonder how much you can make? [Search health careers by salary](#) on ExploreHealthCareers.org.

### ***You'll enjoy job security***

Unlike many industries that are losing workers, the health care field is growing rapidly. The U.S. Department of Labor expects health care will generate 3 million new wage and salary jobs between 2006 and 2016, more than any other industry. Dozens of health careers have good or excellent job prospects, meaning you'll never have trouble finding a job.

### ***You can do work that interests you***

A career in health can lead in many directions. You can treat patients in an office or study cells under a microscope. You can work in a small doctor's office or run a hospital. You can examine eyes, mend bones, clean teeth or deliver babies. The range of skills and experiences is limited only to your imagination.

### ***You can live and work anywhere you want***

Almost every region of the United States has a strong demand for healthcare professionals in a wide range of fields. As a trained health worker, you can choose where you want to live and the setting you want to work in.

### ***You can find a health career that fits your educational plans***

There are health careers that require 8, 10, even 13 years of specialized education after high school, and there are health careers you can train for in 18-24 months at your local community college. You can [search for health careers that fit your educational plans](#) on ExploreHealthCareers.org.

### ***You can learn by reading and by doing***

Many health career training programs involve both classroom lectures and hands-on learning opportunities. You may spend time in a lab, do a summer internship in a community clinic, or do a clinical rotation in a bustling hospital to hone your technical and patient care skills. There are even hands-on learning programs for high school and college students who haven't decided on a career. [Find a pre-health enrichment program](#) near you.

### ***You'll have a clear path to advancement***

It costs employers less to promote a trusted worker than to hire someone new. Many employers will reimburse educational expenses and even give you time off to go to school so you can qualify for a higher-paying position. Some organizations run [career ladder programs](#) that help accelerate employee advancement.

### **You can work with people (or not)**

Do you prefer to work alone or on a team? Are you more comfortable working with people or with information? Whatever your preference, you can find a health career that matches your skills and interests.

### ***You'll make a difference in people's lives***

Perhaps the biggest benefit of being a healthcare professional is that you will make a difference in people's lives. Whether you work as a nurse's aide, a cytotechnologist, a food safety inspector, or a veterinary assistant, you will be helping to make our world a little healthier, a little safer and a little better. Start your [search for a health career](#) today.

Washington State Health Science Project  
BUILDING A PROGRAM OF EXCELLENCE

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**Leadership Core Team Forum March 3, 2015**  
**Foundation Skills Additional Recommendations or Emphasis**

- ✓ Program of Study standards sequence to “Fast Track” students
- ✓ Academic preparation appropriate for selected career
- ✓ “backward mapping” to build articulation/learning continuum
- ✓ Distance learning orientation
- ✓ Capture more of the rural student population
- ✓ Active listening skills
- ✓ Interpersonal skills
- ✓ Familiar with second language (proficiency)
- ✓ Cultural sensitivity
- ✓ Communications for the healthcare environment
- ✓ Database – (Microsoft Office suite)
- ✓ Access to and use of HIT
- ✓ Cyber security
- ✓ Teamwork
- ✓ Inter-professional education/appreciation
- ✓ Cultural diversity awareness/appreciation
- ✓ Education planning financial responsibility
- ✓ Employability readiness (soft skills)
- ✓ Work-based, service learning, job shadow
- ✓ Nutrition and wellness
- ✓ Biological science

# Washington State Health Science Project BUILDING A PROGRAM OF EXCELLENCE

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## Partnership Commitment Agreement

Organization/Association Name \_\_\_\_\_

Contact Person Name and Title \_\_\_\_\_

Contact Information:

Address \_\_\_\_\_

\_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_ FAX \_\_\_\_\_

The organization/association agrees to assist the Health Science Program of Study with the following support:

(Please complete information for all that apply)

<u>Activity</u>	<u>Number of Days/Locations</u>
_____ State level Leadership Team participation	_____
_____ Curriculum alignment with 2 and 4 year programs	_____
_____ On-line/distance learning	_____
_____ Legislative design and support (as needed)	_____
_____ Teacher professional development (job shadows, etc.)	_____
_____ Teacher mentoring	_____
_____ In-class presentations and instruction	_____
_____ In-class student assessment	_____
_____ Project and problem-based learning	_____
_____ Student mentoring	_____
_____ Student tutoring	
_____ Math; level _____	_____
_____ Science; discipline _____	_____
_____ English; specialization _____	_____
_____ Workplace learning	_____ / _____
_____ Explorations	_____ / _____
_____ Job Shadowing	_____ / _____
_____ Guided Study Tours	_____ / _____
_____ Student Internships (paid/unpaid)	_____ / _____
_____ Faculty Internships	_____ / _____

\_\_\_\_\_ Other assistance (please list)

_____	/	_____
_____	/	_____
_____	/	_____
_____	/	_____
_____	/	_____

\_\_\_\_\_ Resources (please list)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Please submit the completed form to:

Marianna Goheen, Health Science Program Supervisor  
Email: [Marianna.goheen@k12.wa.us](mailto:Marianna.goheen@k12.wa.us)

For questions contact Marianna via phone: 360.725.6257

(Local school information here)

Thank you for your support and willingness to assist with the success of Washington's students seeking to prepare for a career in healthcare.

# Washington State Health Science Project

## BUILDING A PROGRAM OF EXCELLENCE

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### Flash Drive Content

- Program of Excellence Power Point
- Project Overview
- Self-assessment
  - Summary Report
  - Component Analysis Charts
- BETA Sites
  - Site Location Map
  - Framework Site Observations and Recommendations
  - Network Profile Form
- Washington State Demographics Quick Facts
- Program of Study (POS)
  - Pathway to Postsecondary 24 Credit Requirements
  - Learning Continuum Conceptual Model
  - National Healthcare Foundation Standards (NHFS) and Accountability Criteria
  - Program of Study Standards Implementation Options
- Integrated Activities
  - Web Site Introduction
  - 20 Integrated Activities
    - Grade k-2 (2 activities)
    - Grade 3-5 (2 activities)
    - Grade 6-8 (2 activities)
    - Grade 9-12 (14 activities)
- Interdisciplinary Curriculum
  - Cultural Differences in Health Care Practices Unit
  - How to Develop Interdisciplinary Curriculum Addendum
- Workplace Learning
  - Cover and Overview
  - Section 1 Workplace Learning Preparation and Guidelines
  - Scope of Practice Diagram (page 7 for Section 1)
  - Section 1: Appendix
  - Section 2: Career Explorations and Assessments
  - Section 2: Appendix
  - Section 2: Department Rotations
  - Section 3: Service Learning for the Health Sciences
  - Section 3: Appendix
- Leadership Enhancement Instructional Materials
  - Introduction
  - Part I Self Awareness
  - Part II School Wide Project
  - Part III Community Leadership
  - Training (agenda)
- Partnership Commitment Agreement Form