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California Workforce Investment Board
Health Workforce Development Council
Career Pathway Sub-Committee

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EXECUTIVE SUMMARY

California's Emerging Health Workforce Needs

There is an urgent and important need for California to expand its health workforce capacity to achieve the goals of healthcare reform and meet the health needs of its growing, increasingly diverse and aging population. Expansion of the health workforce is also critical to California's state and regional economies, the viability of its health organizations and rewarding economic opportunities for residents.

California is already experiencing statewide and regional shortages and mal-distribution in many critical health professions. Healthcare reform implementation and other key trends, such as population growth and aging, will exacerbate these challenges. By 2014, up to 5.9 million additional Californians will have access to health insurance coverage through implementation of the Patient Protection and Affordable Care Act of 2010 (PPACA). Expanded coverage will likely increase demand for healthcare and preventative services. Workforce shortages could undermine the ability of these newly insured to access services and obtain quality care.

The expected increase in health workforce demand may occur simultaneously with major health workforce supply challenges. Anticipated supply challenges include: major retirements from an aging health workforce; higher education and health training program budget cuts and capacity constraints; increase in the length of educational requirements for some professions; and reduced numbers of primary care graduates. Scope of practice laws and reimbursement rates and policies that undermine the attractiveness and use of certain professionals represent additional challenges. Current economic conditions mask these imminent supply challenges, such as delaying anticipated retirements, and the overall imbalance between supply and demand as organizations have needs now but cannot afford to hire. Supply challenges will increase pressure on the capacity of providers to meet access, quality and cost goals. Safety net and rural providers in particular may face greater workforce challenges if a large portion of the three million additional insured through Medi-Cal, seek services from them.

Emerging delivery models and expanded use of health information technology and tele-health may offer opportunities to mitigate workforce challenges. However, they are in the early stages of adoption and have not yet yielded significant breakthroughs in how to most effectively and efficiently utilize and train future health professionals.

Health Workforce Development Council and Career Pathways Sub-Committee

To proactively address emerging health workforce challenges, the California Workforce Investment Board (State Board) and Office of Statewide Health Planning and Development (OSHPD) established the Health Workforce Development Council (Council). Established in August 2010 as a Sub-Committee of the State Board, the Council engages a broad range of public and private stakeholders to achieve its mission of helping to expand California's health workforce in order to provide access to quality healthcare for all Californians. A core goal is to expand California's full-time primary care workforce by 10-25% over the next ten years.

To achieve its mission, the Council is engaged in an extensive process to understand statewide and regional priority health workforce needs and develop a comprehensive strategy. To support the process, the State Board in concert with OSHPD, secured a federal health workforce planning grant from the Health Resources and Services Administration.

A core component of the Council's work and the planning grant is the development of career pathways for priority health professions. Career pathway development is critical to addressing impending

workforce supply challenges. To develop career pathways, the Council established a Career Pathways Sub-Committee (Committee). The 16 member Committee includes key public and private stakeholders representing multiple health professions, health employers, government agencies, K-12, higher education and advocates. The Committee conducted its work April through June 2011. A team of consultants from University of California, Berkeley School of Public Health served as consultants and facilitators to the Committee process.

The Committee's charge is to develop statewide planning recommendations that address the following six areas:

- Existing and potential health career pathways that may increase access to primary care
- Existing education and training capacity and infrastructure to accommodate the career pathways needed to increase access to primary care
- Academic and healthcare industry skill standards for high school graduation, entry into postsecondary education, and various credentials and licensure
- Availability of career information and guidance counseling to existing and potential health professions students and residents
- Big picture issues around recruitment, retention, attrition, transfer, articulation and curricular disconnects, and the identification of policies needed to facilitate the progress of students between education segments in California
- Need for pilot/demonstration projects in eligible health personnel categories, or new health personnel categories

For purposes of the Committee's charge and process, "career pathways" were defined as a coordinated set of components which, when aligned correctly, provide a "pathway" to achieve a sufficient supply, distribution and diversity of qualified candidates for a specific health profession. The Committee adopted a common framework for pathway development (see Appendix A). The Committee used the framework to develop career pathways for seven professions. The professions were selected using criteria established by the Committee. Given the short timeframe for completion of the Committee's work, availability of considerable career pathway information was also a key factor in the selection of initial professions. The seven professions listed below were the initial pathways developed by the Committee. The intention was for pathways to be developed for additional professions when permitted by time and resources. The pathways and recommendations for increasing workforce capacity can be found in the referenced appendices. They are listed below and in the appendices in the order they were presented to and discussed by the Committee, not in any priority order:

- Primary care physicians (Appendix B);
- Primary care nurses (Appendix C);
- Clinical laboratory scientists (Appendix D)
- Medical assistants (Appendix E);
- Community health workers/Promotores (Appendix F);
- Public health professionals (Appendix G); and,
- Social workers (Appendix H).

A draft career pathway was also developed for alcohol and other drug counselors (Appendix I). However, the Committee determined that additional work was needed, beyond its scope, before the

pathway could be finalized. Two additional pathways, direct care (Appendix J) and physician assistants (Appendix K) were also developed for future consideration.

Cross Cutting Recommendations:

The Committee also identified important common themes and “cross cutting” recommendations. Cross-cutting recommendations apply to and would benefit multiple health professions. These recommendations are also designed to enable a larger, more qualified pool of candidates for all health professions to be better prepared for, gain entry into and advance in California’s health workforce. These recommendations are summarized on pages 23-25 of the report. The Committee did not prioritize or propose sequencing or time frames for cross-cutting recommendations but encouraged the Council to do so as part of its strategic plan development.

Infrastructure Recommendations:

Effective implementation of profession-specific pathways and cross-cutting recommendations to meet California’s emerging health workforce needs will require sufficient and sustainable infrastructure, partnerships and investment. To address this need, the Committee developed ten infrastructure recommendations.

- Develop a comprehensive strategic plan for a qualified, diverse health workforce in California aligned with regional and profession specific plans.
- Develop and operate sufficient statewide public and private infrastructure to implement and be accountable for the statewide health workforce plan.
- Support infrastructure to achieve and maintain sufficient capacity in priority professions.
- Establish public and private funding streams to sufficiently invest in priority workforce programs and infrastructure.
- Establish solid “organizing workforce intermediaries” in priority regions with sufficient funding and capacity. These intermediaries will be responsible and accountable for health workforce development in collaboration with key stakeholders in their region.
- Support implementation of and reporting through the OSHPD Clearinghouse Program.
- Develop forecasts of supply, demand, and future need by profession (statewide and regionally). Establish mechanisms for ongoing reporting and adjustment.
- Define and evaluate the roles and competencies of health workers in new care models
- Continue to build the movement to build a qualified, diverse health workforce in California. Support capable statewide and regional leaders.
- Establish mechanisms for shared learning through collecting and disseminating best practices.
- Develop structure and resources for more effective advocacy regarding health workforce development and diversity. Make the case for policy change and investment.

The Committee did not prioritize or propose sequencing or time frames for the infrastructure recommendations but encouraged the Council to do so as part of its strategic plan development.

Academic and healthcare industry skill standards for high school graduation, entry into postsecondary education, and various credentials and licensure:

An important component of the Committee’s work and the planning grant is identifying academic and industry standards for health professions candidates to complete educational requirements and enter the health workforce. Appendix L contains a summary of relevant California standards and current efforts underway to update them. Appendix M includes a summary developed by the Department of

Consumer Affairs on the licensure, educational and experience requirements for health arts professions in California.

Availability of career information and guidance counseling to existing and potential health professions students and residents:

The Committee and consultants developed a summary of major sources of health career information and guidance counseling available in California to current and prospective health professions students. The summary is provided in Appendix N.

Conclusion:

The Career Pathways Sub-Committee accomplished its intended objectives for its efforts April through June 2011. This included development of seven career pathways for selected health professions, as well as preparation of three additional career pathways, and identification of cross-cutting and infrastructure-level recommendations to support all health professions. This report, which contains a summary of the findings and recommendations, has been submitted to the Health Workforce Development Council for further review, approval and prioritization. Selected components may become part of the Council's overall health workforce strategic plan for California. The career pathways and recommendations may also inform other efforts to prepare California to meet its emerging health workforce needs.

INTRODUCTION

There is an urgent and important need for California to expand its health workforce capacity to achieve the access, quality and cost goals of healthcare reform and meet the health needs of its growing, increasingly diverse and aging population. Expansion of the health workforce is also critical to California's state and regional economies, the viability of health organizations and rewarding economic opportunities for residents.

California is already experiencing statewide and regional shortages and mal-distribution in many critical health professions. Healthcare reform implementation and other key trends, such as population growth and aging, will exacerbate these challenges. By 2014, up to 5.9 million additional Californians will have access to health insurance coverage through implementation of the Patient Protection and Affordable Care Act of 2010 (PPACA) (Lavarreda and Cabezas, 2011). Workforce shortages could undermine the ability of these newly insured to access services and obtain quality care.

Greater access to health insurance coverage and coverage for prevention poses a great challenge for California's health care organizations. The expansion of the number of persons with health insurance is likely to increase demand for health care services, further straining organizations that are already coping with the recession, cuts in State funding for health care, shortages and mal-distribution of health professionals, and laws and reimbursement policies that restrict the manner in which health professionals may be utilized. In addition, pressures to contain costs and deliver care more efficiently and effectively are likely to increase (Coffman and Ojeda, 2010).

The expected increase in health workforce demand may occur simultaneously with major health workforce supply challenges. Anticipated supply challenges include: major retirements from an aging health workforce; higher education and health training program budget cuts and capacity constraints; increasing length of educational requirements in some professions; and, reduced primary care production. Current economic conditions mask these imminent supply challenges, such as delaying anticipated retirements, and the overall imbalance between supply and demand as organizations have needs now but cannot afford to hire. Supply challenges will increase pressure on the capacity of providers to meet access, quality and cost goals. Safety net and rural providers in particular may face greater workforce challenges if a large portion of the three million additional insured through Medi-Cal, seek services from them. Many safety net providers are already experiencing significant shortages in key professions and could have a hard time competing with private providers for a shrinking workforce pool.

Demand for public health services will also likely increase at a time when 37% of the California Department of Public Health leadership and staff are anticipated to retire by 2014 (Horton, 2010).

Emerging delivery models and expanded use of health information technology and tele-health may offer opportunities to mitigate workforce challenges. However, they are in the early stages of adoption and have not yet yielded significant breakthroughs in how to most effectively and efficiently utilize and train future health professionals.

Given significant implications of impending supply and demand challenges, coordinated planning and action is needed now to ensure that California's health workforce is prepared to meet the goals of healthcare reform and other emerging priority health needs. To address this urgent and important need, the State of California established a Health Workforce Development Council.

BACKGROUND

Health Workforce Development Council: In August 2010, the California Workforce Investment Board (State Board), and Office of Statewide Health Planning and Development (OSHPD) launched a proactive, statewide health workforce planning and development effort. They established and staffed the Health Workforce Development Council (Council) as a Sub-Committee of the State Board. The Council, comprised of key public and private stakeholders, is designed to achieve its mission of helping to expand California's health workforce in order to provide access to quality healthcare for all Californians.

The Council's efforts were bolstered by the Health Care Development Workforce Planning grant, funded by the Health Resources and Services Administration (HRSA). The planning grant provided a catalyst and opportunity to begin preparing the State to meet the demands created by healthcare reform implementation in 2014 and other major emerging health workforce needs. Through the planning grant, the State is expected to develop plans that would result in a minimum 10%-25% increase in the state's primary care workforce over the next ten years.

A core component of the Council's approach to achieving its primary care workforce expansion goals and developing a statewide health workforce strategy is the development of health career pathways. Development of career pathways provides a road map for the State to increase its workforce capacity in priority health professions and for residents to pursue rewarding career opportunities.

CAREER PATHWAY SUB-COMMITTEE

To develop career pathways for the professions most critical for California to meet its future health workforce needs, the Council created a Career Pathway Sub-Committee (Committee). The Committee’s charge was to develop statewide planning recommendations that address the following six areas:

- Existing and potential health career pathways that may increase access to primary care
- Existing education and training capacity and infrastructure to accommodate the career pathways needed to increase access to primary care
- Academic and healthcare industry skill standards for high school graduation, entry into postsecondary education, and various credentials and licensure
- Availability of career information and guidance counseling to existing and potential health professions students and residents
- Big picture issues around recruitment, retention, attrition, transfer, articulation and curricular disconnects, and the identification of policies needed to facilitate the progress of students between education segments in California
- Need for pilot/demonstration projects in eligible health personnel categories, or new health personnel categories

A key focus of the Committee’s work was development of pathway recommendations to ensure that California has a qualified, diverse health workforce. For purposes of this project, qualified, diverse health workforce was defined as one that enables that state to meet its health quality, access, cost and outcome goals and incorporates elements of diversity that support those goals, including but not limited to race and ethnicity, gender, socioeconomic status, geographic distribution, and areas of practice.

Members who assumed responsibility for this charge and served on the Committee are listed in the table below. Committee Members were invited to participate from a diverse array of health professions and health organizations across the state of California, in an effort to represent a depth and breadth of expertise, perspectives and interests.

Table 1. Career Pathway Sub-Committee

MEMBER NAME	ORGANIZATION
Kevin Barnett	California Health Workforce Alliance
Steve Barrow, Chair	California State Rural Health Association
Cindy Beck	California Department of Education
John Blossom	California Area Health Education Center
Dena Bullard	UC Office of the President

Table 1. Career Pathway Sub-Committee

MEMBER NAME	ORGANIZATION
David A. Cherin	CSU F and California Social Work Education Center
Diane Factor	Service Employees International Union (SEIU)
Priscilla Gonzalez-Leiva	California Institute for Nursing in Healthcare
Cindy Kanemoto	California Department of Consumer Affairs
Laura Long	Kaiser Permanente, National Workforce Planning and Development
Cathy Martin	California Hospital Association
Jose Millan	California Community College Chancellor's Office
Caryn Rizell	California Primary Care Association
Anette Smith-Dohring	Sutter Health Sacramento Sierra Region
Sheila A. Thomas (Jenni Murphy)	Office of the Chancellor, California State University
Linda Zorn	California Community College Health Workforce Initiative

PROCESS AND METHODOLOGY

The Committee developed a robust methodology to guide its work. The University of California, Berkeley team comprised of Jeff Oxendine, Jennifer Lachance, Gil Ojeda and Perfecto Munoz supported the Committee. They planned and facilitated Committee meetings, worked with experts to develop and prepare materials before and after each meeting, and prepared the final report. The Committee conducted and completed its work April-June 2011.

Process

At the first meeting on April 19, 2011, the Committee established ground rules, agreed on the common framework for pathway development, established selection criteria for pathway development and chose six pathways for development. The Committee also agreed upon the process and format for review and approval of pathways and recommendations. Two additional pathways were selected at the second meeting. The Committee met 4 times between April 19 and June 30 with considerable work done on pathway and recommendation development between meetings.

The Committee's career pathway development was bolstered by existing statewide health workforce development efforts. In many priority professions, recommendations to build workforce capacity and career pathways had already been or were in the process of being developed. Significant research had also been done in recent years to document the need for and solutions to strengthen a qualified, diverse health workforce for California. The Committee had the benefit of leveraging the valuable expertise, information and relationships that had developed through statewide health workforce associations, coalitions and research projects. The Committee was able to build on those efforts by utilizing well documented and vetted barriers and recommendations to inform its decisions.

One method through which the Committee leveraged existing workforce expertise was to engage workforce leaders from priority professions to develop career pathways and recommendations. Many workforce coalitions and associations had already spent considerable time identifying barriers and developing recommendations for increasing workforce supply and diversity in priority health professions. Therefore, the Committee agreed that the most efficient use of its time and way to get the best possible product would be to use updated versions of this information as a starting point. This also increased the number of pathways reviewed by the Committee and accelerated their development. This approach was also a way to engage experts who could be potential partners in the further planning and implementation of priority recommendations. Experts were identified by the Committee and in consultation with the University of California Berkeley (UCB) team. The UCB team then worked closely with the experts to facilitate the development of the career pathway. A list of the specific groups and experts engaged can be found in Table 6.

The Committee and consultants approached career pathway development within the context of emerging delivery models, such as medical homes and Accountable Care Organizations (ACOs) and expanded use of tele-health and electronic health records. The workforce implications of emerging models for prevention and community health improvement were also considered. This approach helped the Committee consider future workforce needs within an emerging paradigm instead of the status quo.

The career pathway development process included the following steps:

1. Committee members identified a list of professions for consideration and then used criteria to select a subset for pathway development.
2. Consultants and experts prepared the selected pathways using the approved pathway framework.
3. The Committee reviewed the pathways developed by the experts and consultants. For each pathway, the Committee vetted the pathway components, supply and demand information, key

barriers and recommendations and additional pathway components. Key questions, edits and suggested changes were discussed.

4. The consultants and experts subsequently worked to incorporate the Committee's edits and prepare an updated version of the pathways.
5. The Committee then reviewed the updated pathways, confirmed the edits, made additional changes, and decided on final recommendations for the Council. Decisions were made by consensus after robust discussion.
6. Consultants presented a consolidated list of cross-cutting recommendations that had been raised by the Committee throughout steps two through five, for review and discussion.
7. Consultants presented a consolidated list of infrastructure recommendations that had emerged throughout steps two through five, for review and discussion.
8. The Committee utilized an online document-sharing repository, a Wiki Workspace, to share updated documents throughout the process and ensure that all members had access to the same documentation and most recent materials. Members were able to review initial and modified pathways as well as articles and other resources to help inform the work.

All Committee work adhered to the Bagley-Keene Open Meeting Act (Bagley-Keene). In particular, for the Wiki Workspace, Committee members saved commentary on documents for public meetings in accordance with Bagley-Keene. Public comment was provided at each meeting.

Career Pathway Definition and Framework

DEFINITION

For purposes of this project, "career pathways" are defined as a coordinated set of components which, aligned correctly, provide a "pathway" for California to achieve a sufficient supply, distribution and diversity of qualified candidates for a specific health profession. The Committee chose to use this "systems level" approach to career pathway development. This allowed the Committee to focus recommendations on the system components that need to be in place, coordinated and at capacity to achieve and continue to enable a sufficient overall pool of candidates. For example, to have a sufficient supply of qualified nurses to meet anticipated employer staffing demands related to PPACA implementation requires alignment of key "system" components. System components may include: sufficient training program access, clinical internship placements, and incentives for graduates to work in outpatient primary care settings. The Committee's career pathway development approach involved identifying these components for the selected professions and development of recommendations to address barriers that limit sufficient workforce capacity. The Coordinated Health Workforce Pathway, in

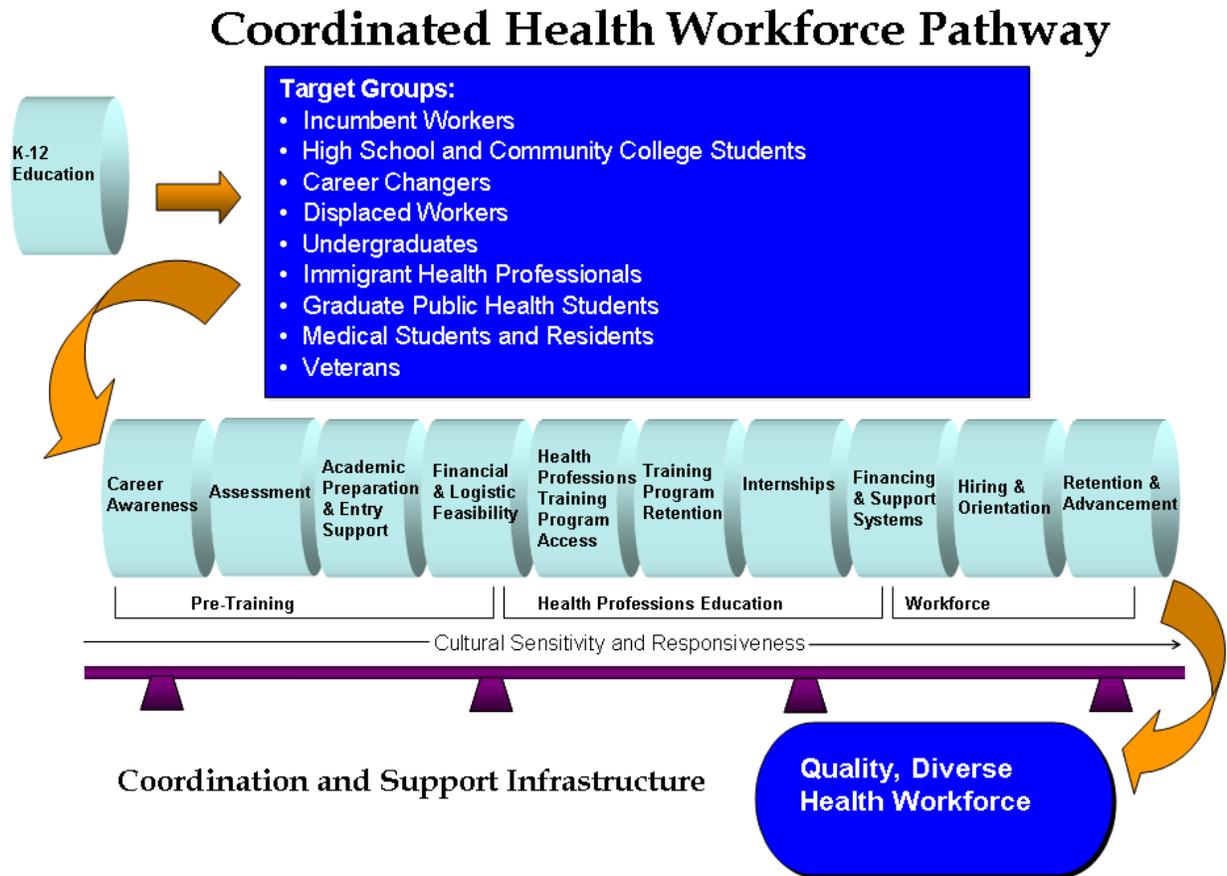
the Illustration and Appendix A, provides a visual depiction of the components used by the Committee in its career pathway definition.

The systems level pathway approach used by the Committee is different from “individual” level career pathway development that is commonly used by some education and career development stakeholders. Individual pathways commonly define the steps, curriculum, positions and requirements for an individual to enter and progress within a pathway for a specific profession. The Committee acknowledged that the systems and individual level pathway approaches are complementary and both are important to increasing health workforce capacity and opportunities for residents. As such, while the priority focus was on systems level pathway development, when possible, the Committee also summarized individual level pathway information for selected professions. The Committee recommended that future pathway development efforts in California include both approaches.

FRAMEWORK

As previously described, to the Committee approved use of a common framework for development of career pathways and recommendations. Use of the common framework provided a clear, consistent and comprehensive method of pathway development across professions. The Committee approved use of the Coordinated Health Career Pathway Model (see Illustration) developed by Jeff Oxendine and used by the California Health Workforce Alliance (CHWA), as its common pathway development framework. The model was then adapted by the consultants and experts to fit the specific workforce system components and key barriers facing each profession.

Illustration A. Coordinated Health Workforce Pathway Utilized by the Committee



Jeff Oxendine©

PATHWAY COMPONENT DESCRIPTIONS

The blue box lists the key target groups that can be encouraged and supported to pursue health careers. For pathway development, it is important to recognize that each target group has different needs and entry points into the pathway for a profession. This should be taken into account when developing outreach and support strategies. However, recommendations for ensuring a sufficient overall candidate pool for a given profession should include strategies to recruit and support candidates from all target groups throughout the pathway.

Note: The components of the framework are intentionally not connected. This is because progression from one component to the next presents an opportunity for a barrier to arise in the system. These barriers could then result in sub-optimal “bottle necks” for sufficient supply in the profession and points where candidates may be more likely to drop fall out of the pathway. The coordinating infrastructure

component of the model is intended to be sure there are dedicated, expert people and resources to ensure that each component is at sufficient scale and capacity and that candidates are supported through the entire pathway.

The components of the health Coordinated Health Workforce Pathway include:

Table 2. Definition and Description of Pathway Components

PATHWAY COMPONENTS
<ul style="list-style-type: none"> <p>K-12 Education: The role and importance of quality of educational and career preparation that candidates receive at the K-12 level. Effective K-12 preparation is an important foundation for candidates from all target groups. Candidates need basic knowledge and skills to be ready for and capable of obtaining the training or college education needed as a first step toward health profession entry. Candidates without sufficient K-12 preparation require costly and time consuming remediation by colleges, universities, health professions education schools and health employers. Insufficient K-12 preparation can limit the numbers of qualified, diverse candidates overall and for specific health professions and in specific regions within the state.</p>
<ul style="list-style-type: none"> <p>Career Awareness: Target groups’ awareness of specific health career options and how to pursue them. To produce a sufficient supply of candidates for a specific profession, target groups must be aware of that option, understand what is involved and consider it attractive and potentially viable enough to begin exploring or pursuing. There is often limited awareness, among key target groups, of highest priority need health professions. This can be particularly true for candidates from low income or underrepresented populations. Career awareness is necessary but not sufficient for candidates to pursue health careers. Other pathway components must also be in place and coordinated.</p>
<ul style="list-style-type: none"> <p>Assessment of Fit and Readiness: Is a combination of three components (1) candidates ability to determine if a career they are aware of is a fit with their interests, goals and talents (2) an assessment of the candidates aptitude and preparation for a health career (3) a determination of how candidates can strengthen their readiness to pursue education, training or work in a given profession. Once candidates are aware of and interested in a health career, it is important that they are then able to assess it and be assessed in the three ways described above. This can be accomplished through shadowing, pre-professional training, internships, career counseling, academic advising volunteering and mentoring. Career pathway development requires ensuring that these components are accessible and utilized so that a sufficient pool of candidates can make well informed decisions and advance further along the pathway.</p>
<ul style="list-style-type: none"> <p>Academic Preparation and Entry Support: Candidates' ability to (1) obtain the academic preparation they need to access the training program or job that they want to pursue and (2)</p>

Table 2. Definition and Description of Pathway Components

PATHWAY COMPONENTS
<p>obtain support to understand how to adequately prepare, apply and gain entry. Candidates need to know how to obtain required academic preparation and then be able to access it for their desired health career. They also need to know how to get from where they are to entry into their chosen field and need solid academic and career advice about the educational options that best fit their circumstances. In particular, candidates need good advice and support to successfully navigate application processes which are often complex and confusing, particularly for people with little exposure to higher education. Once candidates’ qualifications and fit are assessed, they need opportunities to strengthen their preparation and presentation. There are many programs that offer this kind of training and support for entry level workers and post baccalaureate programs offer this for aspiring physicians and dentists. Some candidates apply but encounter challenges or don’t get accepted to their program and need additional support to adjust their options, strengthen their preparation and stay in the process.</p>
<ul style="list-style-type: none"> • Financial and Logistical Feasibility: Candidates’ ability to (1) secure financial arrangements that enable them to participate in a training program and (2) logistically be able to participate in the training program given their circumstances and how and where it is offered. Health career education and training programs need to be financially and logistically viable for candidates from all backgrounds. Many well qualified candidates are not able to obtain the training they need due to these barriers, particularly with rising educational costs. This is often particularly true for candidates in rural or urban underserved areas or candidates who need to continue working. Designing training programs and financial support options that make health training programs more accessible and affordable will result in more sufficient numbers of candidates and greater participation and advancement from all groups. Expansion of on-line educational courses and degree programs with financial resources available to make them affordable is an example of enhancing financial and logistic feasibility to increase candidate access and training program capacity.
<ul style="list-style-type: none"> • Training Program Access: Sufficient training program access to admit and graduate sufficient numbers of qualified, diverse candidates to meet the demand for workers in a specific profession and geographic area. Without sufficient training program access, qualified, motivated candidates cannot pursue their chosen career and California cannot produce a sufficient supply of professionals to meet the demand. A number of factors influence training program access including: faculty Full Time Equivalent positions (FTE) and salaries, cost of providing the training, State funding, internship training slots and training facilities. It is important to “right size” programs to meet the statewide and regional demand or rely on recruitment from other states or countries.
<ul style="list-style-type: none"> • Training Program Retention: The ability to retain and graduate admitted students in a health training program. Training programs in some health professions experience high attrition rates. This

Table 2. Definition and Description of Pathway Components

PATHWAY COMPONENTS
<p>can undermine the work of getting sufficient numbers and diversity of candidates into training programs. Retention challenges can also results in (1) significant education costs that don't produce graduates that enter the field at a time when resources are limited (2) insufficient numbers of graduates (3) slots that other qualified candidates are not able to use and (4) problems and expense for people who were not able to complete the program. In some impacted professions, candidates used limited slots that could have gone to qualified candidates who could complete the program. Many factors can influence retention. With concerted efforts, retention can be enhanced for most professions.</p>
<ul style="list-style-type: none"> <p>Internships and Clinical Training: Structured, formal internship, residency and clinical training experiences in health organizations. These experiences enable students to: (1) apply theory in practice; (2) develop hands-on skills on the job; (3) satisfy training requirements; (4) obtain needed experience; and, (5) get a job. Sufficient internship capacity for priority professions, settings and geographic areas are critical to meeting workforce supply needs and providing opportunity for participants. Internships are an important part of health professions training. For many professions, internships are required part of the curriculum and their availability influences training program capacity. They are also an important opportunity for exposure and career decision refinement, including the type of organization and role candidates want to work in. Internships are also a primary source of practical skill building and mentorship. The location and settings for training may influence where candidates may ultimately practice. In many fields internships are the bridge to employment opportunities.</p>
<ul style="list-style-type: none"> <p>Financing and Support Systems: A combination of factors that (1) make it financially attractive for candidates to pursue a health career; (2) enables training program participants to enter and then successfully practice in a given profession or setting; and, (3) enable professionals working in a profession and/or geographic region to viably meet their financial goals and thrive. Key factors in attracting and retaining sufficient candidates into priority professions, settings and geographic areas are compensation, financial incentives, and support systems to help them succeed in their practice. Factors such as reimbursement, recruitment incentives and other financial incentives also have a significant influence. Once professionals enter practice in a given organization or community, they need support to be successful given the demands of practice and administration. The practice environment and its impact on professional and personal work-life and satisfaction are key factor in professional selection and retention. Systems need to be put in place to influence sufficient numbers and diversity of members to pursue and succeed in priority professions, safety net institutions and underserved areas.</p>
<ul style="list-style-type: none"> <p>Hiring and orientation: Effective recruitment, hiring and orientation support to enable sufficient</p>

Table 2. Definition and Description of Pathway Components

PATHWAY COMPONENTS
<p>numbers of training program graduates and existing health professionals to work and initially succeed in target organizations and settings. Even if sufficient numbers of professionals are trained, organizations still need to recruit, orient and develop them in a manner that secures their practice in priority settings, organizations and geographic areas. Some organizations, such as government agencies or types of professions may have hiring processes, practices and time frames that undermine their ability to hire or compete for candidates even if the need is great. Adjusting these barriers may enhance recruitment and elimination of vacancies. In some professions or organizations where shortages exist, insufficient orientation and ongoing support can result in a loss of recent hires after costly and pro-longed recruitment. This continues the cycle of shortages. Streamlining recruitment, hiring and orientation practices is important to increasing workforce capacity.</p>
<ul style="list-style-type: none"> ● Retention and advancement: Ensuring that candidates within an organization, geographic area or professions have sufficient opportunities to stay with the organization and have upward mobility. In many cases, significant effort and resources are invested in recruitment of candidates but not in planning for and ensuring retention and advancement. Retention and advancement are particular challenges for rural or urban underserved areas, government or small non-profit agencies and some academic settings.
<ul style="list-style-type: none"> ● Coordinating infrastructure: Availability of sufficient staffing, organization, data and resources to (1) develop, implement and coordinate pathway components; (2) provide ongoing workforce planning and development and tracking; (3) establish relationships and monitor changing circumstances to make adjustments to policies and programs as needed; and, (4) organize continuity of support for candidates as they progress through the pathway. Sufficient coordinating infrastructure is required to put all of the components of the pathway in place at sufficient scale, linkage and quality within geographic areas or professions. An organizing intermediary, coalition, lead organization or individuals are required to mobilize and build relationships with stakeholders responsible for each element and enhance collaboration and investment to ensure the system level pathway is in place and barriers to sufficient supply and diversity are addressed. Coordinating infrastructure is also critical to provide “case management” and other support services for candidates as they progress through the different components and stages of their career pursuit. The components in the model are not connected because going from each stage is an opportunity for people to fall out of the pathway. Sufficient system level and individual level supports must be in place to ensure adequate supply in priority professions and geographic areas.
<ul style="list-style-type: none"> ● Cultural responsiveness and sensitivity: The degree to which attitudes, behaviors, conditions and systems among organizations and individuals that interact with candidates throughout the

Table 2. Definition and Description of Pathway Components

PATHWAY COMPONENTS
<p>pathway are culturally response and sensitive to the candidates’ background. Throughout the pathway, from pre-training though advancement, it is important to ensure that services are promoted and provided to candidates and patients in a culturally responsive and sensitive manner. This includes race, ethnicity, age, sexual orientation, culture, language, gender, income status and other factors that influence learning, choices, success and provision of service to clients. Health professions education institutions, higher education, K-12, employers, advisors and others from all backgrounds need to practice cultural responsiveness and sensitivity to meet the needs of an increasingly diverse population.</p>

Application of the Pathway Framework

The pathway framework can be used to develop career pathways for a profession or group of professions on a statewide, regional and/or local basis. The Committee chose to use this framework for development of career pathways on a statewide level for selected professions. For each priority profession, the goal was to define the relevant components, identify barriers and opportunities for increasing the supply and develop recommendations for enhancing pathway and capacity.

The Committee worked with experts and the consultants to adapt the pathway model to the specific professions. The components developed for each pathway is summarized below. These components were developed by experts and the consultants and presented to the Committee for each pathway, time and data permitting. The Committee then reviewed and modified the pathways, barriers and recommendations and recommended moving them forward to the Council for final review and approval.

Additional Elements Developed for Pathways

In addition to using the pathway framework to develop career pathways, the elements in the table below were also developed for each selected profession as the basis for developing recommendations and fulfilling the Committee’s charge:

Table 3. Additional Pathway Elements

ADDITIONAL ELEMENTS DEVELOPED FOR EACH PATHWAY
<ul style="list-style-type: none"> • Background information, including an understanding of the current state of supply and demand for the given profession, as well as projections based on PPACA implementation and other relevant factors, to

Table 3. Additional Pathway Elements

ADDITIONAL ELEMENTS DEVELOPED FOR EACH PATHWAY
provide an estimate of and justification for the current and future need.
<ul style="list-style-type: none"> • Barriers related to the pathway components that are currently most responsible for and critical to ensuring sufficient numbers of qualified, diverse individuals pursuing and ultimately entering and advancing in the given profession.
<ul style="list-style-type: none"> • Recommendations to address each priority barrier, allowing for consideration of the pathway itself as well as “big picture” issues around items such as recruitment, retention, attrition, transfer, articulation and curricular disconnects, and the identification of policies needed to facilitate the progress of students between education segments in California. The three levels of recommendations were: pathway-specific, cross-cutting, and infrastructure recommendations.
<ul style="list-style-type: none"> • Existing education and training capacity and infrastructure to accommodate the career pathways needed to increase access to primary care.
<ul style="list-style-type: none"> • Academic and healthcare industry skill standards for high school graduation, entry into postsecondary education, and various credentials and licensure. Future efforts may draw upon the skill standards being developed in a separate, parallel process by the California Department of Education, the California Community Colleges and the California Health Workforce Alliance. These efforts are described in Appendix L.
<ul style="list-style-type: none"> • Availability of career information and guidance counseling to existing and potential health professions students and residents.
<ul style="list-style-type: none"> • Need for pilot/demonstration projects in eligible health personnel categories, or new health personnel categories.

Development of Recommendations

While the primary focus of this initiative was to identify pathway-specific recommendations, the work would have been incomplete without also identifying and addressing several themes that arose across pathways. Similarly, many recommendations can only be implemented successfully and with maximum impact when accompanied by infrastructure-level changes. Therefore, in addition to pathway specific recommendations, the Committee also developed cross-cutting and infrastructure recommendations. Each of the three types of recommendations is described in the table below.

Table 4. Types of Recommendations developed by the Committee

RECOMMENDATION TYPE	DESCRIPTION
<i>Pathway-Specific</i>	<ul style="list-style-type: none"> Recommendations that apply only or primarily to the career pathway under consideration.
<i>Cross-Cutting</i>	<ul style="list-style-type: none"> Recommendations that apply across multiple career pathways and increase the overall candidate pool.
<i>Infrastructure</i>	<ul style="list-style-type: none"> Recommendations related to sufficient staffing, organization, data and resources to develop and implement effective and ongoing workforce planning, programs, policies, and systems within and across professions.

The three types of recommendations are complementary and together further strengthen each set of recommendations.

Pathway Selection and Development

The Committee identified an initial list of health careers for consideration. It also established criteria for selection of careers for pathway and recommendation development. The selection criteria are provided in the table below. They also identified lead organizations to work with the consultants to develop each pathway and the additional four components.

Table 5. Pathway Selection Criteria

SELECTION CRITERIA
<ul style="list-style-type: none"> Identified as a priority through regional focus groups
<ul style="list-style-type: none"> Impact on access to care
<ul style="list-style-type: none"> Trends in licensure applications which provided an indication of changing demand.
<ul style="list-style-type: none"> Evidence-based documentation of current shortages or future supply and demand challenges.
<ul style="list-style-type: none"> Identified as a priority in PPACA or state planning grant. Potential impact of PPACA on demand.
<ul style="list-style-type: none"> Need for greater diversity within the profession or contribution to overall health workforce diversity
<ul style="list-style-type: none"> Role of profession in future models of care
<ul style="list-style-type: none"> Geographic/regional needs

A summary of selected pathways, experts engaged to develop the pathway, and the final recommended actions for the Council, is included in the table below. The pathway, barriers, recommendations and additional information for each profession is included in the appendix listed in the table.

Table 6. Pathways Developed, Lead Individuals and Expert Group, and Recommended Actions

PATHWAY*	LEAD INDIVIDUAL AND EXPERT GROUP	RECOMMENDED ACTION FOR COUNCIL
<ul style="list-style-type: none"> Primary care physicians 	<ul style="list-style-type: none"> Jeff Oxendine, CHWA, Primary Care Initiative 	<ul style="list-style-type: none"> Approve pathway and recommendations. Appendix B
<ul style="list-style-type: none"> Primary care nurses 	<ul style="list-style-type: none"> Priscilla Gonzalez-Leiva Deloras Jones, Carolyn Orłowski and Pilar De La Cruz and California Institute for Nursing in Healthcare (CINHC) 	<ul style="list-style-type: none"> Approve pathway and recommendations. Appendix C
<ul style="list-style-type: none"> Clinical laboratory scientists 	<ul style="list-style-type: none"> Cathy Martin (California Hospital Association (CHA)) and Health Laboratory Workforce Initiative (HLWI) 	<ul style="list-style-type: none"> Approve pathway and recommendations. Appendix D
<ul style="list-style-type: none"> Medical assistants 	<ul style="list-style-type: none"> Diane Factor, Caryn Rizell, Linda Zorn and the California Society of Medical Assistants 	<ul style="list-style-type: none"> Approve pathway and recommendations. Appendix E
<ul style="list-style-type: none"> Community health workers/Promotores 	<ul style="list-style-type: none"> Gil Ojeda and Perfecto Munoz of the California Program on Access to Care (CPAC) convened a nine person Promotores Workgroup 	<ul style="list-style-type: none"> Approve pathway and recommendations. Appendix F
<ul style="list-style-type: none"> Public health professionals 	<ul style="list-style-type: none"> Jeff Oxendine and California Public Health Alliance for Workforce Excellence (CPHAWE) Steering Committee 	<ul style="list-style-type: none"> Approve pathway and recommendations. Appendix G
<ul style="list-style-type: none"> Social workers 	<ul style="list-style-type: none"> David Cherin and California Association of Deans and Directors of Social Work (CADD), California Social Work Education Center (CalSWEC) 	<ul style="list-style-type: none"> Approve pathway and recommendations. Appendix H

Table 6. Pathways Developed, Lead Individuals and Expert Group, and Recommended Actions

PATHWAY*	LEAD INDIVIDUAL AND EXPERT GROUP	RECOMMENDED ACTION FOR COUNCIL
<ul style="list-style-type: none"> Alcohol and other drug abuse counselors 	<ul style="list-style-type: none"> Sherry Daley and California Association of Alcoholism and Drug Abuse Counselors (CAADAC) 	<ul style="list-style-type: none"> Approve overarching recommendation for further investigation into this pathway. Appendix I

*Please note that pathways are listed in the order they were presented to and discussed by the Committee and are not in any order of priority.

Two additional pathways, direct care and physician assistants, were also developed for the Committee to consider after the rest of the pathways had been finalized. Given the intensive review process necessary for the above eight pathways, the Committee was not able to review these two additional pathways. However, they are prepared and ready for Committee, Council or a successor process review if desired in the future.

In many cases, the expert groups reached out to much wider networks of contacts to ensure diverse representation in the development of the pathway and recommendations.

CROSS-CUTTING RECOMMENDATIONS

In the process of the Committee’s review and development of recommendations for individual career pathways, a range of *cross-cutting* recommendations emerged. These recommendations were relevant and seemed to affect several pathways and/or the overall pool of candidates able to progress from pre-training and stages of health career preparation and into graduate education and the workforce. The cross-cutting recommendations are summarized below. These recommendations were developed from synthesizing pathway discussions rather than by taking the coordinated health workforce pathway model and attempting to identify cross cutting themes. As a result, some of the cross cutting recommendations summarized below match specific components in the pathway model and others that were important but were not part of the model are titled differently.

Table 7. Cross-Cutting Recommendations

CROSS-CUTTING THEME	RECOMMENDATION
<ul style="list-style-type: none"> Career Awareness 	<ul style="list-style-type: none"> Increase awareness of health career options and how to pursue and finance

Table 7. Cross-Cutting Recommendations

CROSS-CUTTING THEME	RECOMMENDATION
	<p>them through more targeted and effective outreach to individuals, parents and advisors at all levels and throughout the pathway. Increase utilization of social marketing, new media and other emerging tools.</p> <ul style="list-style-type: none"> ● Expand health career advising and courses throughout the California State University System. ● Prioritize outreach, training and support for incumbent workers. Emphasize economic development opportunity. ● Increase skill building, academic, advising and “career case management” support for individuals throughout all stages of the pathway to increase retention and success.
<ul style="list-style-type: none"> ● Academic Preparation and Training Program Capacity and Alignment 	<ul style="list-style-type: none"> ● Protect funding for California’s Community College workforce preparation programs and K-12 programs that feed into them. ● Determine, preserve and protect funding for California’s public institutions of higher education based on what California needs to meet health workforce requirements. ● Align training program capacity and production with industry demand and emerging health sector needs (e.g. type, size, curriculum, access). ● Improve course articulation between California’s institutions of higher education. ● Alleviate barriers related to sufficient clinical training capacity and geographic distribution.
<ul style="list-style-type: none"> ● Academic Entry and Logistic Feasibility 	<ul style="list-style-type: none"> ● Improve access to pre-requisite courses. ● Standardize pre-requisites. ● Revisit pre-requisites as indicators of success in education programs and employment. ● Utilize more technology-assisted education tools. ● Improve/clarify articulation along career paths and lattices (e.g., associate’s degree in nursing (ADN) to bachelor of science in nursing (BSN), community health workers (CHWs) to other careers, medical laboratory technician (MLT) to clinical laboratory scientist (CLS)).
<ul style="list-style-type: none"> ● Financial Support and Incentives 	<ul style="list-style-type: none"> ● Improve/increase incentives for students to choose primary care careers and service in underserved areas (e.g., scholarship and loan repayment). ● Increase funding for internships and clinical training in ambulatory settings and underserved areas and provide infrastructure to coordinate. ● Examine the impact of increasing tuition, fees and debts on student’s ability

Table 7. Cross-Cutting Recommendations

CROSS-CUTTING THEME	RECOMMENDATION
	<p>to enter and complete programs.</p> <ul style="list-style-type: none"> ● Increase awareness of programs that offer financial support and how to utilize. Make it easier for target students to use. ● Examine and improve reimbursement to recruit and retain in key professions and geographically.
<ul style="list-style-type: none"> ● Training Program Capacity 	<ul style="list-style-type: none"> ● Offer new or expanded education and training programs through self-supporting strategies and partnerships, such as a fee-based programs and courses. ● Project capacity needs relative to long term need. Maintain or expand capacity in priority professions. ● Increase internship and clinical training opportunities to expand training program capacity. ● Establish programs with specific primary care and diversity focus. Locate more in underserved communities and in outpatient and community settings.
<ul style="list-style-type: none"> ● Diversity and Service 	<ul style="list-style-type: none"> ● All recommendations should have a priority focus on diversity and individuals from disadvantaged and underrepresented backgrounds and underserved communities. ● Increase institutional commitment and investment in proven programs that increase workforce and diversity. ● Focus on culture change and accountability in training programs to promote primary care and service commitments. ● Examine demographic profiles across job classifications and create career ladders for advancement. ● Develop measurable matrix for defining success related to diversity in professions in relation to patient populations.
<ul style="list-style-type: none"> ● Roles and Scope of Practice 	<ul style="list-style-type: none"> ● Support professionals to practice at full current scope. ● Examine scope of practice for different professions within new delivery models and workforce needs. ● Support definition of new competencies and roles within emerging service models and across overlapping professions.

INFRASTRUCTURE RECOMMENDATIONS

In addition to the cross-cutting recommendations listed above, ten overarching infrastructure-level recommendations for California were identified with broad impact on many or all of the health career pathways under consideration. These are summarized below.

Table 8. Infrastructure Recommendations

RECOMMENDATION
<ul style="list-style-type: none">• Develop a comprehensive strategic plan for a qualified, diverse health workforce in California aligned with regional and profession specific plans.• Develop and operate sufficient statewide public and private infrastructure to implement and be accountable for the statewide health workforce plan.• Support infrastructure to achieve and maintain sufficient capacity in priority professions.• Establish public and private funding streams to sufficiently invest in priority workforce programs and infrastructure.• Establish solid “organizing workforce intermediaries” in priority regions with sufficient funding and capacity. These intermediaries will be responsible and accountable for health workforce development in collaboration with key stakeholders in their region.• Support implementation of and reporting through the OSHPD Health Care Workforce Clearinghouse Program.• Develop forecasts of supply, demand, and future need by profession (statewide and regionally). Establish mechanisms for ongoing reporting and adjustment.• Define and evaluate the roles and competencies of health workers in new care models.• Continue the movement to build a qualified, diverse health workforce for California. Support capable statewide and regional leaders.• Establish mechanisms for shared learning through collecting and disseminating best practices.• Develop structure and resources for more effective advocacy regarding health workforce development and diversity. Make the case for policy change and investment.

CONCLUSION AND NEXT STEPS

The Career Pathways Committee fulfilled its initial charge within the available timeframe by accomplishing its intended objectives for its efforts from April 2011 through June 2011. This included development of seven initial health career pathways for, as well as preparation of three additional career pathways, and identification of cross-cutting and infrastructure-level recommendations to support all health professions. This report, which contains a summary of the findings and

recommendations, has been submitted to the Health Workforce Development Council for further review, approval and prioritization. Selected components may become part of the Council's comprehensive workforce strategy for California. The career pathways and recommendations may also inform other efforts to prepare California to meet its emerging health workforce needs.

Based on the Committee's work, the UC Berkeley team identified several next steps the Council can consider to maximize and leverage the Committee's efforts and capitalize on the momentum generated from these intensive efforts. Potential next steps include:

- Determine a quantifiable goal for workforce shortages to be addressed within each career pathway under consideration.
- Project the impact of each of the recommendations (pathway-specific, cross-cutting, and infrastructure) toward achieving the desired workforce in each career pathway, including cost of implementation, time to impact, and the amount of the workforce supply or capacity needs that would be addressed.
- Develop prioritization criteria to apply to recommendations. Consider cost, impact, timing, sequencing and other factors.
- Prioritize recommendations, including pathway-specific, cross-cutting, and infrastructure recommendations using the criteria. Emphasize recommendations with maximum impact to achieve the critical goals of the Council. Establish near-term, mid-range and long-term recommendations.
- Develop implementation proposals to submit for funding for high-priority recommendations.
- Develop additional statewide and/or regional pathways for priority regions and professions using the pathway model. Identify target regions to start with based on need, opportunity, champions and contribution to statewide and regional needs.
- Complete additional unfinished Committee work.

These recommendations can be achieved by further work by the Council, or through continued efforts of the Career Pathway Committee, or a new Sub-Committee with expanded responsibilities to address this broader concept of the next steps associated with career pathway development.

Appendices

Appendix A. Career Pathway Definition and Framework

DEFINITION

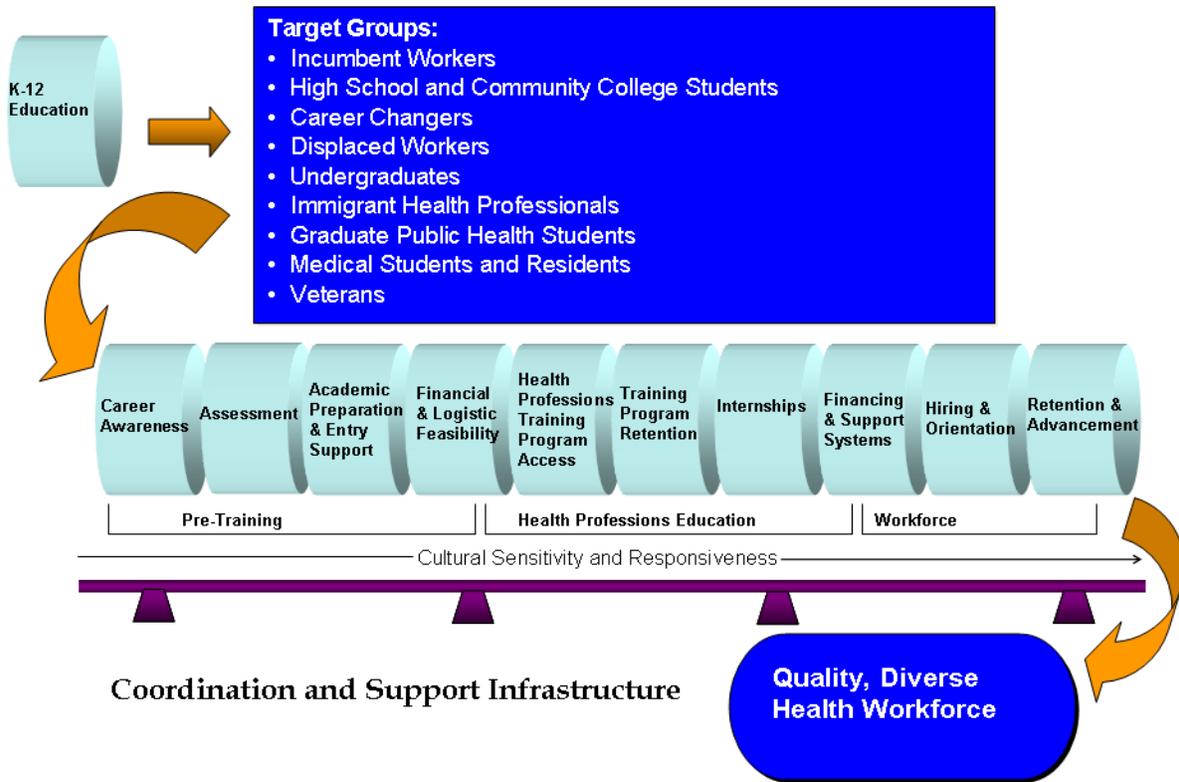
For purposes of this project, “career pathways” are defined as a coordinated set of components which, aligned correctly, provide a “pathway” for California to achieve a sufficient supply, distribution and diversity of qualified candidates for a specific health profession. The Committee chose to use this “systems level” approach to career pathway development to focus recommendations on the system components that need to be in place, coordinated and at capacity achieve and continue to enable a sufficient overall pool of candidates. For example, to have a sufficient supply of qualified nurses to meet anticipated employer staffing demands related to PPACA implementation, requires alignment of key “system” components such as sufficient training program access, clinical internship placements, and incentives for graduates to work in outpatient primary care settings. The Committee’s career pathway development approach involved identifying these components for priority professions and development of recommendations to address barriers to sufficient workforce capacity. The Coordinated Health Workforce Pathway, in the Illustration, provides a visual depiction of the components used by the Committee in its career pathway definition.

The “systems level” pathway approach used by the Committee is different from “individual” level career pathway development that is commonly used by some education and career development stakeholders. Individual pathways commonly define the steps, curriculum, positions and requirements for an individual to enter and progress within pathway for a specific profession. The Committee acknowledged that the systems and individual level pathway approaches are complimentary and important to increasing health workforce capacity and opportunities for residents. As such, while the priority focus was on systems level pathway development, when possible, the Committee also summarized individual level pathway information for selected professions. The Committee recommended that future pathway development efforts in California include both approaches.

FRAMEWORK

As previously described, the Committee approved use of a common framework for development of career pathways and recommendations. Use of the common framework provided a clear, consistent and comprehensive method of pathway development across professions. The Committee approved use of the *Coordinated Health Career Pathway Model* (see Illustration) developed by Jeff Oxendine as its common pathway development framework. The model was then adapted by the consultants and experts to fit the specific workforce system components and key barriers facing each profession.

Coordinated Health Workforce Pathway



Jeff Oxendine©

Illustration A. Coordinated Health Workforce Pathway Utilized by the Committee

PATHWAY COMPONENT DESCRIPTIONS

The blue box lists the key target groups that can be encouraged and supported to pursue health careers. For pathway development, it is important to recognize that each target group has different needs and entry points into the pathway for a profession. This should be taken into account when developing outreach and support strategies. However, recommendations for ensuring a sufficient overall candidate pool for a given profession should include strategies to recruit and support candidates from all target groups throughout the pathway.

Note: The components of the framework are intentionally not connected. This is because progression from one component to the next presents an opportunity for a barrier to arise in the system. These barriers could then result in sub-optimal “bottle necks” for sufficient supply in the profession and points where candidates may be more likely to drop fall out of the pathway. The coordinating infrastructure component of the model is intended to be sure there are dedicated, expert people and resources to ensure that each component is at sufficient scale and capacity and that candidates are supported through the entire pathway.

The components of the health Coordinated Health Workforce Pathway include:

Table A-1. Definition and Description of Pathway Components

PATHWAY COMPONENTS
<ul style="list-style-type: none"> <p>K-12 Education: The role and importance of quality of educational and career preparation that candidates receive at the K-12 level. Effective K-12 preparation is an important foundation for candidates from all target groups. Candidates need basic knowledge and skills to be ready for and capable of obtaining the training or college education needed as a first step toward health profession entry. Candidates without sufficient K-12 preparation require costly and time consuming remediation by colleges, universities, health professions education schools and health employers. Insufficient K-12 preparation can limit the numbers of qualified, diverse candidates overall and for specific health professions and in specific regions within the state.</p>
<ul style="list-style-type: none"> <p>Career Awareness: Target groups' awareness of specific health career options and how to pursue them. To produce a sufficient supply of candidates for a specific profession, target groups must be aware of that option, understand what is involved and consider it attractive and potentially viable enough to begin exploring or pursuing. There is often limited awareness, among key target groups, of highest priority need health professions. This can be particularly true for candidates from low income or underrepresented populations. Career awareness is necessary but not sufficient for candidates to pursue health careers. Other pathway components must also be in place and coordinated.</p>
<ul style="list-style-type: none"> <p>Assessment of Fit and Readiness: Is a combination of three components (1) candidates ability to determine if a career they are aware of is a fit with their interests, goals and talents (2) an assessment of the candidates aptitude and preparation for a health career (3) a determination of how candidates can strengthen their readiness to pursue education, training or work in a given profession. Once candidates are aware of and interested in a health career, it is important that they are then able to assess it and be assessed in the three ways described above. This can be accomplished through shadowing, pre-professional training, internships, career counseling, academic advising volunteering and mentoring. Career pathway development requires ensuring that these components are accessible and utilized so that a sufficient pool of candidates can make well informed decisions and advance further along the pathway.</p>
<ul style="list-style-type: none"> <p>Academic Preparation and Entry Support: Candidates' ability to (1) obtain the academic preparation they need to access the training program or job that they want to pursue and (2) obtain support to understand how to adequately prepare, apply and gain entry. Candidates need to know how to obtain required academic preparation and then be able to access it for their desired health career. They also need to know how to get from where they are to entry into their chosen field and need solid academic and career advice about the educational options that best fit their circumstances. In particular, candidates need good advice and support to successfully navigate</p>

Table A-1. Definition and Description of Pathway Components

PATHWAY COMPONENTS
<p>application processes which are often complex and confusing, particularly for people with little exposure to higher education. Once candidates’ qualifications and fit are assessed, they need opportunities to strengthen their preparation and presentation. There are many programs that offer this kind of training and support for entry level workers and post baccalaureate programs offer this for aspiring physicians and dentists. Some candidates apply but encounter challenges or don’t get accepted to their program and need additional support to adjust their options, strengthen their preparation and stay in the process.</p>
<ul style="list-style-type: none"> <p>Financial and Logistical Feasibility: Candidates’ ability to (1) secure financial arrangements that enable them to participate in a training program and (2) logistically be able to participate in the training program given their circumstances and how and where it is offered. Health career education and training programs need to be financially and logistically viable for candidates from all backgrounds. Many well qualified candidates are not able to obtain the training they need due to these barriers, particularly with rising educational costs. This is often particularly true for candidates in rural or urban underserved areas or candidates who need to continue working. Designing training programs and financial support options that make health training programs more accessible and affordable will result in more sufficient numbers of candidates and greater participation and advancement from all groups. Expansion of on-line educational courses and degree programs with financial resources available to make them affordable is an example of enhancing financial and logistic feasibility to increase candidate access and training program capacity.</p>
<ul style="list-style-type: none"> <p>Training Program Access: Sufficient training program access to admit and graduate sufficient numbers of qualified, diverse candidates to meet the demand for workers in a specific profession and geographic area. Without sufficient training program access, qualified, motivated candidates cannot pursue their chosen career and California cannot produce a sufficient supply of professionals to meet the demand. A number of factors influence training program access including: faculty Full Time Equivalent positions (FTE) and salaries, cost of providing the training, State funding, internship training slots and training facilities. It is important to “right size” programs to meet the statewide and regional demand or rely on recruitment from other states or countries.</p>
<ul style="list-style-type: none"> <p>Training Program Retention: The ability to retain and graduate admitted students in a health training program. Training programs in some health professions experience high attrition rates. This can undermine the work of getting sufficient numbers and diversity of candidates into training programs. Retention challenges can also results in (1) significant education costs that don’t produce graduates that enter the field at a time when resources are limited (2) insufficient numbers of graduates (3) slots that other qualified candidates are not able to use and (4) problems and expense for people who were not able to complete the program. In some impacted professions, candidates</p>

Table A-1. Definition and Description of Pathway Components

PATHWAY COMPONENTS
<p>used limited slots that could have gone to qualified candidates who could complete the program. Many factors can influence retention. With concerted efforts, retention can be enhanced for most professions.</p>
<ul style="list-style-type: none"> <p>Internships and Clinical Training: Structured, formal internship, residency and clinical training experiences in health organizations. These experiences enable students to (1) apply theory in practice; (2) develop hands-on skills on the job; (3) satisfy training requirements; (4) obtain needed experience; and, (5) get a job. Sufficient internship capacity for priority professions, settings and geographic areas are critical to meeting workforce supply needs and providing opportunity for participants. Internships are an important part of health professions training. For many professions, internships are required part of the curriculum and their availability influences training program capacity. They are also an important opportunity for exposure and career decision refinement, including the type of organization and role candidates want to work in. Internships are also a primary source of practical skill building and mentorship. The location and settings for training may influence where candidates may ultimately practice. In many fields internships are the bridge to employment opportunities.</p>
<ul style="list-style-type: none"> <p>Financing and Support Systems: A combination of factors that (1) make it financially attractive for candidates to pursue a health career; (2) enables training program participants to enter and then successfully practice in a given profession or setting; and (3) enable professionals working in a profession and/or geographic region to viably meet their financial goals and thrive. Key factors in attracting and retaining sufficient candidates into priority professions, settings and geographic areas are compensation, financial incentives, and support systems to help them succeed in their practice. Factors such as reimbursement, recruitment incentives and other financial incentives also have a significant influence. Once professionals enter practice in a given organization or community, they need support to be successful given the demands of practice and administration. The practice environment and its impact on professional and personal work-life and satisfaction are key factor in professional selection and retention. Systems need to be put in place to influence sufficient numbers and diversity of members to pursue and succeed in priority professions, safety net institutions and underserved areas.</p>
<ul style="list-style-type: none"> <p>Hiring and orientation: Effective recruitment, hiring and orientation support to enable sufficient numbers of training program graduates and existing health professionals to work and initially succeed in target organizations and settings. Even if sufficient numbers of professionals are trained, organizations still need to recruit, orient and develop them in a manner that secures their practice in priority settings, organizations and geographic areas. Some organizations, such as government agencies or types of professions may have hiring processes, practices and time frames</p>

Table A-1. Definition and Description of Pathway Components

PATHWAY COMPONENTS
<p>that undermine their ability to hire or compete for candidates even if the need is great. Adjusting these barriers may enhance recruitment and elimination of vacancies. In some professions or organizations where shortages exist, insufficient orientation and ongoing support can result in a loss of recent hires after costly and pro-longed recruitment. This continues the cycle of shortages. Streamlining recruitment, hiring and orientation practices is important to increasing workforce capacity.</p>
<ul style="list-style-type: none"> <p>Retention and advancement: Ensuring that candidates within an organization, geographic area or professions have sufficient opportunities to stay with the organization and have upward mobility. In many cases, significant effort and resources are invested in recruitment of candidates but not in planning for and ensuring retention and advancement. Retention and advancement are particular challenges for rural or urban underserved areas, government or small non-profit agencies and some academic settings.</p>
<ul style="list-style-type: none"> <p>Coordinating infrastructure: Availability of sufficient staffing, organization, data and resources to (1) develop, implement and coordinate pathway components; (2) provide ongoing workforce planning and development and tracking; (3) establish relationships and monitor changing circumstances to make adjustments to policies and programs as needed; and, (4) organize continuity of support for candidates as they progress through the pathway. Sufficient coordinating infrastructure is required to put all of the components of the pathway in place at sufficient scale, linkage and quality within geographic areas or professions. An organizing intermediary, coalition, lead organization or individuals are required to mobilize and build relationships with stakeholders responsible for each element and enhance collaboration and investment to ensure the system level pathway is in place and barriers to sufficient supply and diversity are addressed. Coordinating infrastructure is also critical to provide “case management” and other support services for candidates as they progress through the different components and stages of their career pursuit. The components in the model are not connected because going from each stage is an opportunity for people to fall out of the pathway. Sufficient system level and individual level supports must be in place to ensure adequate supply in priority professions and geographic areas.</p>
<ul style="list-style-type: none"> <p>Cultural responsiveness and sensitivity: The degree to which attitudes, behaviors, conditions and systems among organizations and individuals that interact with candidates throughout the pathway are culturally response and sensitive to the candidates’ background. Throughout the pathway, from pre-training though advancement, it is important to ensure that services are promoted and provided to candidates and patients in a culturally responsive and sensitive manner. This includes race, ethnicity, age, sexual orientation, culture, language, gender, income status and other factors that influence learning, choices, success and provision of service to clients. Health</p>

Table A-1. Definition and Description of Pathway Components

PATHWAY COMPONENTS
professions education institutions, higher education, K-12, employers, advisors and others from all backgrounds need to practice cultural responsiveness and sensitivity to meet the needs of an increasingly diverse population.

Appendix B. Primary Care Physicians

Background Information

CURRENT SITUATION AND FUTURE NEED

A primary care physician was defined for the purposes of this work as a physician who has a primary specialty designation of family medicine, internal medicine, geriatric medicine, or pediatric medicine (PPACA, p. 555). Currently, California has 59 Medical Board of California-certified physicians per 100,000 population, which is under the range of 60-80 physicians per 100,000 population as recommended by the Council of Graduate Medical Education (COGME). This ratio is slightly improved in California when including Doctors of Osteopathic Medicine (DO) (see table below).

Table B-1. Number of Primary Care Physicians in California

	MEDICAL BOARD CERTIFIED	MEDICAL BOARD PLUS AMERICAN MEDICAL ASSOCIATION (AMA)- CERTIFIED DO
Total physicians	66,480	69,460
Primary care physicians	22,528	24,124
Per 100k population	59	65
COGME Range	60-80 per 100k population	

Source: Grumbach et al., 2009.

The need for primary care physicians in California is more pronounced among underserved communities. Currently, the state has only 46 primary care physicians per 100,000 Medi-Cal enrollees, well below the recommended COGME range of 60-80 per 100,000 population. This is also pronounced in specific geographies. The Inland Empire has only 40 primary care physicians per 100,000 population, and the San Joaquin Valley has 45 per 100,000 population. In addition, almost 30% of California's physicians are older than 60, the largest proportion of any state, and nationally the production of primary care physicians has declined by almost 33% in the last ten years (Grumbach et al., 2009).

Healthcare reform implementation will have a significant impact on the demand for primary care physicians in California. Increases in coverage for primary care and preventative services

will result in increased demand for primary care physicians. Of particular concern is the impact of the additional 3million Medi-Cal enrollees (Lavarreda and Cabezas, 2011) when the state is already far below the recommended number of primary care physicians per 1,000 population overall and in many regions. Without additional primary care physicians and other members of interdisciplinary primary care teams the additional coverage may not achieve the intended access, quality and cost containment goals.

In addition to healthcare reform, other factors such as the dramatic growth, aging and diversification of the population and the implementation of *California's Bridge to Health Reform 1115 Waiver, Medicaid Demonstration* and advances in medical homes and Accountable Care Organizations will also increase demand for primary care physicians. At the same time, the supply of primary care physicians is expected to decline as the current aging workforce retires.

Unfortunately, projections have not been done for the number and geographic distribution of primary care physicians needed to meet the anticipated increases in demand and decreases in supply. Forecasting of demand and supply and establishment of targets is an important next step. Establishment of targets for defined time frames is key to focusing strategies and investments and measuring progress. In the absence of forecasted targets, the Committee developed recommendations to increase the number and distribution of primary care physicians based on the assessment of need and recommendations from primary care experts. The overarching charge of the Council of increasing California's primary care workforce capacity by 10-25% over the next ten years was used as a guide for development of recommendations.

Pathway and Recommendation Development

The pathway and recommendations presented to the Committee were developed by The California Primary Care Workforce Initiative, convened by CHWA. Over 30 key stakeholders from throughout California participated in a series of five strategy development meetings between January and June 2011. Stakeholders included representatives from statewide associations, health employers, higher education, health professions schools, government agencies, profession specific leaders, primary care physicians, coalitions and State and Federal government agencies. Key informant interviews were also conducted with primary care experts to inform strategy development. After an extensive vetting process, a pathway model, recommendations and immediate strategies were agreed upon. These components were presented to the Committee. The Committee made further modifications to the original pathway model including but not limited to: added emphasis on recruiting individuals from underrepresented backgrounds and underserved communities, improved incentives for

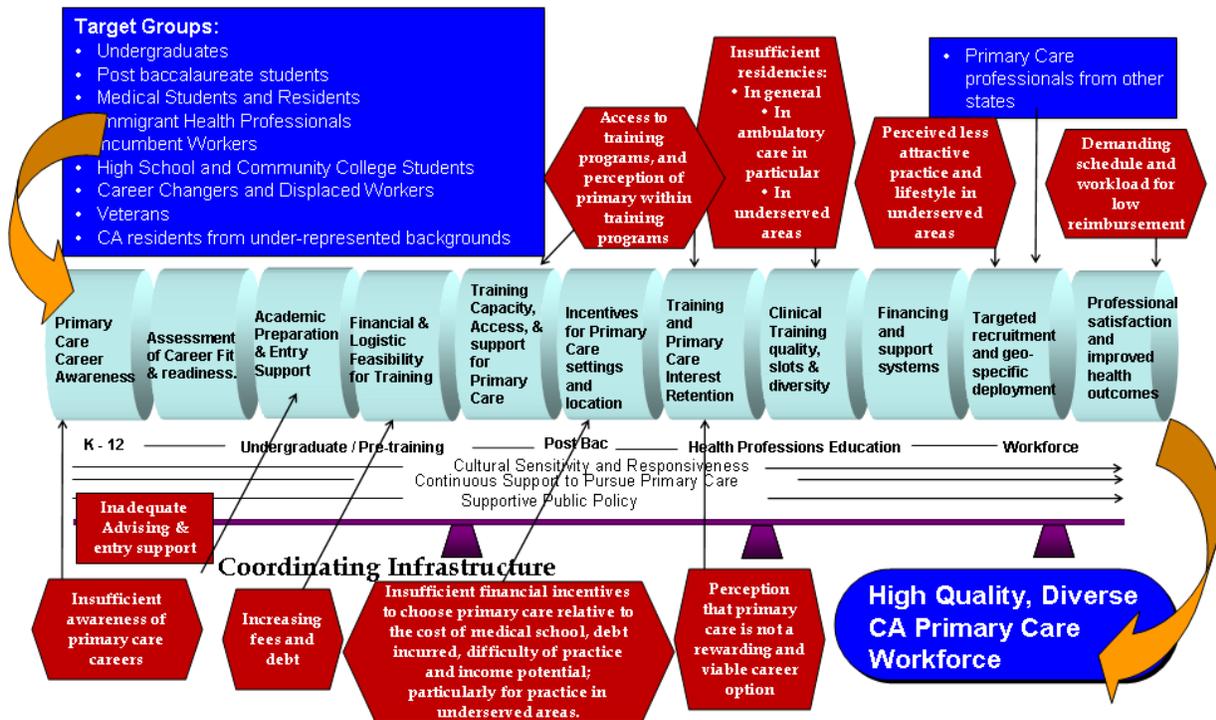
individuals to serve in underserved communities, increased support and funding for schools and training programs that produce primary care physicians, increased primary care residency programs and slots, improved reimbursement systems and rates to increase the attractiveness of primary care as a career, and creation of novel pilot programs for primary care physicians in rural areas. The Committee also recommended that these additional pathway component sections be approved by the Health Workforce Development Council.

Pathway and Components

VISUAL DEPICTION

The pathway below represents the final system pathway developed for primary care physicians in California. The barriers and recommendations developed are detailed in the following section.

Primary Care Physician Workforce Pathway



Adapted by the California Health Workforce Alliance from the coordinated health career pathway developed by Jeff Oxendine.

BARRIERS AND RECOMMENDATIONS

The barriers identified in the pathway model are addressed below, accompanied by recommendation(s) to address these barriers, as well as immediate strategies to address each of the overarching recommendations. These are also reflected below.

Table B-2. Primary Care Physician Pathway Barriers, Recommendations, and Immediate Strategies

BARRIER	RECOMMENDATION	IMMEDIATE STRATEGIES
<ul style="list-style-type: none"> ● Insufficient Awareness of Primary Care Careers 	<ul style="list-style-type: none"> ● Increase primary care career awareness among students, advisors, parents, policymakers, and the general public, with a priority emphasis on people from under-represented backgrounds and underserved communities. 	<ul style="list-style-type: none"> ● Develop and implement a comprehensive marketing plan for the primary care workforce in California that conveys a compelling case and vision for primary care. ● Develop curriculum content and build educational capacity to provide knowledge on the full spectrum of primary care-related health careers. Content should encompass all levels of K-16 education for use by educators and parents. ● Advocate for public and institutional policy reforms that increase awareness and support for early and ongoing education on the importance of primary care and prevention.
<ul style="list-style-type: none"> ● Insufficient financial incentives to choose primary care relative to the cost of medical school, debt incurred, difficulty of practice and income potential; particularly for practice in underserved areas. ● Increasing fees and debt. ● Barriers to practice and lifestyle in underserved areas. 	<ul style="list-style-type: none"> ● Increase recruitment and retention of primary care team members in California, particularly for the safety net and underserved areas. 	<ul style="list-style-type: none"> ● Increase loan repayment and scholarship programs and funding for primary care in California. ● Explore new creative approaches to incent primary care practice in underserved areas. ● Increase participation in loan repayment programs by streamlining and simplifying process. ● Increase awareness and participation by sites to facilitate student participation. ● Reduce barriers to recruitment of primary care delivery team members in underserved areas. ● Increase use of Steven M. Thompson Physician Corps Loan Repayment and California State Loan Repayment Program funds and creative use of state funds for

Table B-2. Primary Care Physician Pathway Barriers, Recommendations, and Immediate Strategies

BARRIER	RECOMMENDATION	IMMEDIATE STRATEGIES
		required match. <ul style="list-style-type: none"> ● Increase the weight of language requirement as part of loan repayment priority scoring. ● Develop partnerships between training programs and employers to better align education with employer needs. ● Develop regional “management services organizations” to provide affordable practice management services that enhance the success of primary care practices in underserved areas. ● Support legislation to allow physicians to choose to be employed by rural hospitals.
<ul style="list-style-type: none"> ● Access to training programs, and perception of primary care within training programs. 	<ul style="list-style-type: none"> ● Strengthen training program access and support to increase the numbers and diversity of California primary team members and preparation for practice in emerging delivery models. 	<ul style="list-style-type: none"> ● Assess current program capacity and geographic distribution to establish baseline relative to current and projected needs. ● Maintain and increase external and institutional investment in programs and policies that produce the most significant increase in primary care capacity and diversity (i.e., University of California (UC) Programs in Medical Education (PRIME), University of California and California State University Post Baccalaureate Programs, The California Post Baccalaureate Consortium, University of California, Riverside Med School, The Welcome Back Centers). ● Support increased mentorship, leadership and support systems to encourage and retain student interest in primary care and service to underserved communities. ● Fund and support the accreditation of new medical schools in underserved areas that are committed to primary care training including UC Riverside and UC Merced. ● Dedicate funding for primary care slots or tracks in existing medical schools. ● Develop and fund new mechanisms for students who make a commitment to

Table B-2. Primary Care Physician Pathway Barriers, Recommendations, and Immediate Strategies

BARRIER	RECOMMENDATION	IMMEDIATE STRATEGIES
		<p>primary care up front or early in medical school and advance to become primary care physicians including: (1) disadvantaged students who are from underserved communities who want to practice in those communities; (2) students from underrepresented backgrounds; and, (3) students dedicated to practicing in underserved areas.</p> <ul style="list-style-type: none"> ● Provide incentive and accountability for production of primary care graduates. ● Promote institutional culture changes that result in more primary care graduates. ● Support expansion of DO programs focused on producing primary care physicians.
<ul style="list-style-type: none"> ● Insufficient residency opportunities: <ul style="list-style-type: none"> ○ Overall slots ○ Ambulatory care ○ In underserved and rural areas 	<ul style="list-style-type: none"> ● Increase the number of California-based primary care residencies in non-acute settings and in areas of unmet need, and increase the number of graduates who enter primary care. 	<ul style="list-style-type: none"> ● Establish baseline of residencies and primary care graduates and forecast need. ● Develop incentives for residency programs to increase diversity and yield primary care professionals committed to practicing in underserved communities. ● Expand residency opportunities for non-acute primary care environments. Pursue funds for teaching health centers and advocate for achievable standards. ● Develop task force to review current funding streams and develop strategies to increase funding for an increased number of primary care residencies. ● Sustain and advocate for increased funding for Song- Brown Program and the California State Loan Repayment Program. Retain diverse, expert input into programs and funding allocation. ● Expansion and/or replication of model programs such as the University of California Los Angeles (UCLA) International Medical Graduate program. ● Support partnerships to increase the number of students who come to California for residency.

Table B-2. Primary Care Physician Pathway Barriers, Recommendations, and Immediate Strategies

BARRIER	RECOMMENDATION	IMMEDIATE STRATEGIES
<ul style="list-style-type: none"> ● Financial considerations related to the cost of medical school, debt incurred, and difficulty of practice and income potential, particularly for practice in underserved areas, discourages choice of primary care for medical students. 	<ul style="list-style-type: none"> ● Proactively engage California leaders to develop new financing and delivery models to: <ul style="list-style-type: none"> ○ Clarify the role and functions of health workforce. ○ Assess the impact on the future demand for training of primary care team members. ○ Develop and implement strategies for primary care practice transformation that improve attractiveness of and satisfaction with primary care careers. ○ Increase productivity and efficiency of primary care teams to meet access, quality and health outcome goals and objectives. 	<ul style="list-style-type: none"> ● Engage and convene those with a stake in implementing healthcare reform, health homes and health information technology (HIT) to define the role and function of primary care and support workforce development. ● Develop, pilot, and evaluate primary care practice transformation demonstration projects.
<ul style="list-style-type: none"> ● Demanding work schedule relative to low reimbursement levels. ● Perception that primary care is not viable or rewarding. 	<ul style="list-style-type: none"> ● Develop supportive payment structure and policies targeted at increasing the attractiveness of primary care as a career path and retention of primary care providers. 	<ul style="list-style-type: none"> ● Advocate for and Promote Medi-Cal primary care payment increase to Medicare Levels in 2013 and 2014 and sustain beyond. ● Advocate for continuation of the Medicare Primary Care 10% bonus after the Federal support period (2011-2015). ● Structure enhanced payment and new mechanisms for full scope of practice in new models of care (ACO, Health Home), including payment for care coordination. ● Create scientific-based reimbursement system that can establish payment levels at a tipping point that attracts and retains primary care physicians, particularly in underserved areas.

In addition, the Committee reviewed infrastructure recommendations and immediate strategies to address each recommendation.

Table B-3. Infrastructure Recommendations and Immediate Strategies

INFRASTRUCTURE RECOMMENDATION	IMMEDIATE STRATEGIES
<ul style="list-style-type: none"> • Develop the infrastructure, data and funding necessary to support primary care workforce development at regional and statewide level. 	<ul style="list-style-type: none"> • Formalize and invest in a Primary Care Workforce Initiative for California through a private and/or public entity to implement the strategic plan, provide ongoing coordination, advocacy and adjust strategies as needs and solutions change. • Develop supply and demand projections for primary care within the context of healthcare reform, health homes and HIT. Establish baseline and targeted need within defined timeframes. • Establish mechanism through the OSHPD Health Care Workforce Clearinghouse and Primary Care Workforce Initiative to provide timely ongoing tracking and reporting to measure progress toward goals and inform adjustment of strategies. • Establish central database of interested candidates for primary care careers in California at all stages of the pipeline and communication tools for ongoing promotion of primary care, financing options and support program opportunities. • Establish public and private funds to support primary care practice incentives, preparatory programs and pilot demonstration projects.

INDIVIDUAL PATHWAYS

Information on individual pathways had not previously been developed. Given the limited time available to complete the work, the Committee did not have time to develop individual pathways for primary care physicians.

EDUCATION AND TRAINING CAPACITY AND INFRASTRUCTURE

Information on education and training capacity had not previously been developed. Given the limited time available to complete the work, the Committee did not have time to develop education and training capacity for primary care physicians.

ACADEMIC AND HEALTHCARE INDUSTRY SKILL STANDARDS

Information on health industry skill requirements had not previously been developed. Given the limited time available to complete the work, the Committee did not have time to industry skill standards for primary care physicians.

AVAILABILITY OF CAREER INFORMATION AND GUIDANCE COUNSELING

Information on education and training capacity had not previously been developed. Given the limited time available to complete the work, the Committee did not have time to develop career information and guidance counseling information for primary care physicians.

PILOT/DEMONSTRATION PROJECTS

The pilot/demonstration projects identified by the Career Pathway Committee as priorities for the primary care physician pathway are identified below.

Table B-4. Primary Care Physician Pilot/Demonstration Projects

DESCRIPTION OF PILOT/DEMONSTRATION PROJECT
<ul style="list-style-type: none">• Develop pilot projects that promote sharing of primary care physicians (PCP's) among providers and prisons in rural underserved areas, including use of tele-health and other emerging technologies.• Develop, fund and evaluate demonstration project in rural areas that enable a limited number of PCP's to be hired by local hospitals.

Appendix C. Primary Care Nurses

Background Information

CURRENT SITUATION AND FUTURE NEED

There are currently 363,599 Registered Nurses (RNs) with an active California license (California Board of Registered Nursing, 2011a). In 2010, this translated to a 4.2% vacancy rate in hospitals, further compounded by a 8.2% turnover rate (Hospital Association of Southern California, 2011). The average age of the workforce is 47 years, with more than 50% of California working nurses over the age of 50 years (although this varies by region). In terms of diversity, nursing demographics do not match the overall California or regional populations (California Board of Registered Nursing, 2011b).

Despite the vacancy rates noted in hospitals, there is a lack of job opportunities for new graduates, which may adversely impact funding for nursing education. This also leaves California vulnerable to losing new graduates to the profession. In addition, there is a need for nurses with a BSN (Bachelor of Science in Nursing) and higher degrees; however there is insufficient capacity in the California State University (CSU) system to educate the numbers of nurses needed with a BSN (California Institute for Nursing and Health Care, 2011).

The current economic situation has resulted in a reduction in nursing vacancy rates as nurses are working additional shifts, returning to work and deferring retirement. This is masking the true nature of the supply challenges facing nursing. It is anticipated that once economic circumstances improve and as nurses age further that major nursing supply challenges and vacancies will once again arise. This could coincide with the full implementation of healthcare reform. The California Institute for Nursing in Healthcare (CINHC) is concerned that economic factors and the current low nurse vacancy rate could lead to reductions in nursing education and training capacity. This could create major challenges and costs as the potential increase in demand from healthcare reform coincides with a decline in nursing supply as the economy bounces back and people retire.

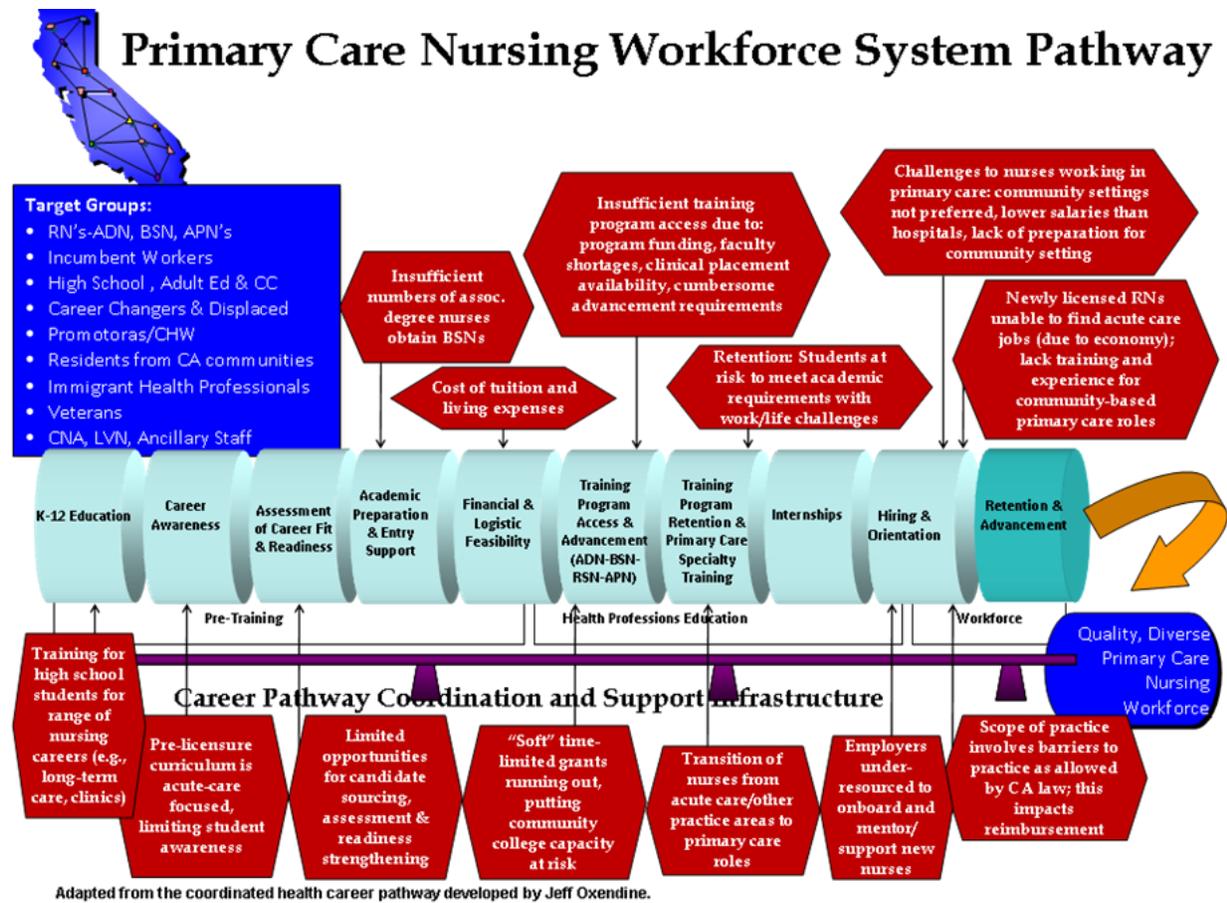
In terms of workplace settings, there is a need to redirect nurses from acute care hospitals to community-based health care delivery and public health. Healthcare reform implementation and other factors will increase the need for nurses to work in and play increasingly important roles in primary care settings; particularly advanced practice nurses. There are already many promising innovations where nursing is playing an increasingly important role in primary care and ambulatory settings. The Glide Health Services Clinic in San Francisco is a national model of a nurse practitioner-led primary care clinic also known as a nurse managed health clinic.

The Institute of Medicine (IOM) and Robert Wood Johnson Foundation (RWJF) recently released a study and recommendations on the Future of Nursing (IOM/RWJF, 2010). A priority focus of the study was on preparing nursing for successful implementation of healthcare reform. CINHC is the agency responsible for working with the California Executive Committee to lead the implementation of the recommendations in California through the California Action Campaign. CINHC leaders developed the proposed pathway components, barriers and recommendations to the Committee for review. The recommendations included the IOM/RWJF recommendations. The Committee vetted and modified the recommendations and is submitting them to the Council for approval.

Pathway and Components

VISUAL DEPICTION

The pathway below represents the final system pathway developed for primary care nurses in California. The barriers and recommendations developed are detailed in the following section.



BARRIERS AND RECOMMENDATIONS

CINHC identified several barriers, and then synthesized their recommendations into several overarching issues. The barriers identified are listed below, followed by these overarching recommendations.

Table C-1. Primary Care Nurses Pathway Barriers

BARRIER
<ul style="list-style-type: none"> ● Barriers Identified on System Pathway <ul style="list-style-type: none"> ○ Lack of training for high school students for range of nursing careers (e.g., long-term care, clinics). ○ Pre-licensure curriculum is acute-care focused, limiting student awareness. ○ Limited opportunities for candidate sourcing, assessment and readiness strengthening. ○ Insufficient numbers of associate degree nurses obtain BSNs. ○ Cost of tuition and living expenses. ○ “Soft” time-limited grants running out, putting community college capacity at risk. ○ Insufficient training program access due to: program funding, faculty shortages, clinical placement availability, and cumbersome advancement requirements. ○ Lack of opportunities for transition of nurses from acute care/other practice areas to primary care roles. ○ Retention: Students at risk to meet academic requirements with work/life challenges. ○ Employers under-resourced to onboard and mentor/ support new nurses. ○ Challenges to nurses working in primary care: community settings not preferred, lower salaries than hospitals, and lack of preparation for community setting. ○ Newly licensed RNs unable to find acute care jobs (due to economy); lack training and experience for community-based primary care roles. ○ Scope of practice involves barriers to practice as allowed by California law; this impacts reimbursement. ● Additional Critical Pathway Barriers <ul style="list-style-type: none"> ○ Current practice models do not maximize potential for health professionals to increase access to care for medically underserved populations. ○ Lack of established academic-service partnerships with community-based services and limited clinical internship capacity or infrastructure for growth in community/primary care settings. ○ Lack of standard pre-requisites leads to redundancies and inefficient use of resources. ● Barriers to Greater Diversity <ul style="list-style-type: none"> ○ Insufficient knowledge regarding pre-requisites. ○ Lack of sufficient counselors at the K -12 level with current knowledge about nursing careers. ○ Insufficient knowledge of nursing career options. ○ Lack of candidate assessment, readiness strengthening, and support. ○ Lack of sufficient funds for tuition and living expenses and need to work full-time. ○ Inability to gain access to programs. ○ Training program capacity limited by faculty availability, clinical placement and internship slots. ○ Lack of role models and tutors particularly for the under-represented minority (URM) student. ○ Temporary decreased interest in the new graduates by employers. ○ Insufficient infrastructure for reaching out to the URM students and offering support. ○ Cultural/communication issues.

Based on these barriers, the CINHC workgroup identified ten top priority recommendations to address the most pressing issues in a coordinated way. The Committee then added three more after extensive discussion. These are summarized below.

Table C-2. Primary Care Nurses Pathway Recommendations

RECOMMENDATION
1. Implement collaborative model of nursing education (seamless progression from ADN to BSN) through California’s public educational institutions. Remove obstacles for self-support at CSU’s.
2. Support legislation for pilot programs for community colleges to support a baccalaureate degree for nursing.
3. Increase access to and capacity of programs for Entry Level Master’s for students with pre-existing baccalaureate.
4. Forecast demand for advanced practice nurses (APNs) and RNs in a redesigned health system based on inter-professional team-base care.
5. Increase the number, scale and sustainability of new graduate transition to practice programs in community settings, especially with priority emphasis on underserved areas.
6. Provide funding and increased APN residencies placements, especially with priority emphasis on underserved areas, including new models for employers to work with schools to allow for increased clinical training opportunities.
7. Offer and market more clinical faculty training programs to increase faculty resources, especially with priority emphasis on underserved areas.
8. Develop opportunities for demonstration models for team-based care and new practice models, especially with priority emphasis on underserved areas.
9. Fund sufficient and sustainable infrastructure for: <ul style="list-style-type: none"> • Nursing workforce development • Increasing diversity • Implementation of the Future of Nursing Recommendations
10. Support successful implementation of the IOM/RWJF Future of Nursing Recommendations (see upcoming slide).
11. Explore potential new models of care and reimbursement of nursing for primary care in all non-hospital settings.
12. Promote primary care nurse practice at full scope of current practice. Explore scope of practice as appropriate for primary care in new delivery models.
13. Find new models for colleges to engage with employers for training in new delivery settings (e.g., Chico State Rural Preceptorship Program in rural areas) and align with employers’ needs.

In addition to the above recommendations, the Committee recommended supporting the IOM/RWJF Future of Nursing Recommendations in all California efforts (IOM/RWJF, 2010). These recommendations are to:

1. Remove scope-of-practice barriers. *(Note: This is supported by the work of the California Action Coalition)*

2. Expand opportunities for nurses to lead and expand collaborative improvement efforts.
3. Implement nurse residency programs.
4. Increase the proportion of nurses with a baccalaureate degree to 80% by 2020.
5. Double the number of nurses with a doctorate by 2020.
6. Ensure that nurses engage in lifelong learning.
7. Prepare and enable nurses to lead change to advance health.
8. Build an infrastructure for the collection and analysis of inter-professional health care workforce data.

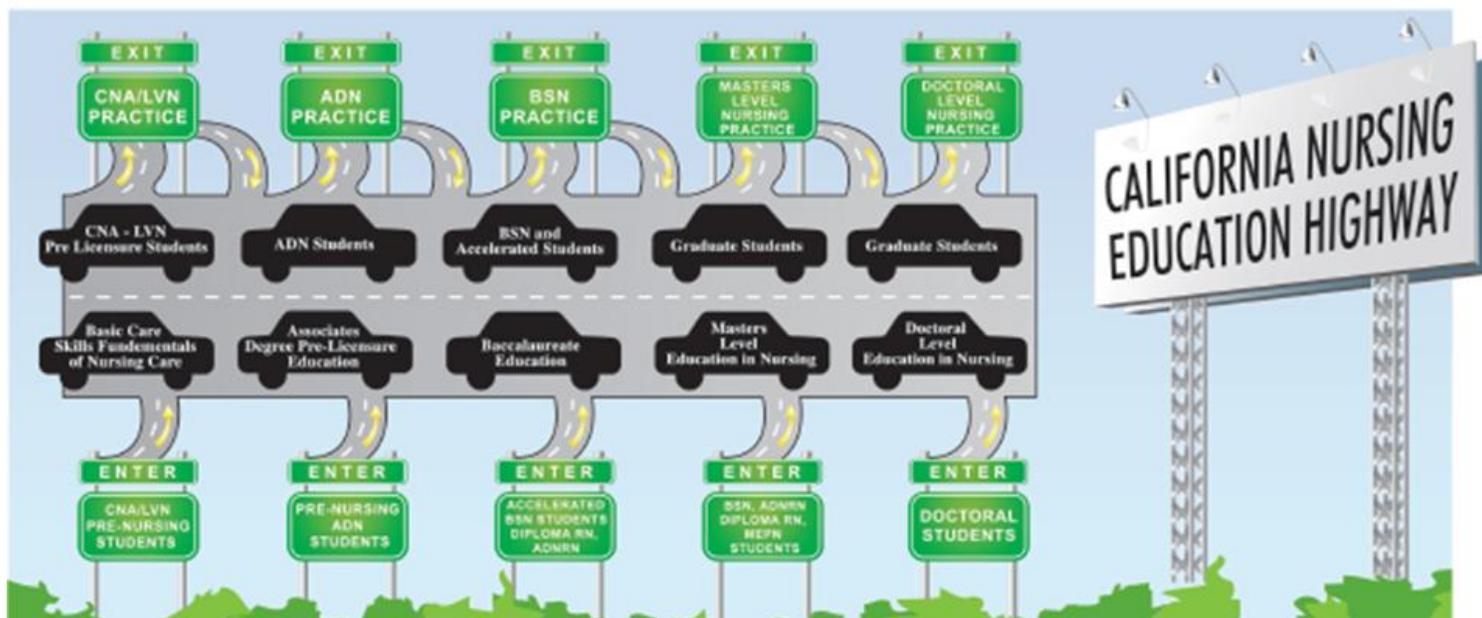
Finally, there are several data needs to support future and improved investment in the primary care nursing workforce. First, data for forecasting the demand for APNs and RNs are needed. This should be based on mathematical models for patients per primary care provider, using a reasonable model for team-based care that includes Medical Doctors (MDs), APNs, RNs in an expanded role, and other care. This may involve an examination of national models for cohorts of patients. Second, information from demonstration projects of different models of care will further inform this discussion. This would include evaluation of the differences in outcomes for different models, in order to support replication of the most successful models. Models to consider include those from Kaiser Permanente, hospital sponsored community clinics, Glide Health Care, and Charles R. Drew University School of Nursing. Using this data, it will then be possible to build the business case for the collaborative model of nursing education.

INDIVIDUAL PATHWAYS

There are several entry points for individuals into the nursing workforce, especially looking at the move to advanced practice nursing. Individuals may enter as a veteran or corpsman, a newly licensed RN, an experienced RN practicing in other specialties such as acute care, or a foreign trained RN. Other individual pathways may be:

- Promotora → CNA → LVN → RN
- Housekeeper → Medical assistant → LVN → RN
- Medical assistant → LVN → RN
- Paramedic → RN → BSN → MSN → DNP
- Corpsman → LVN → RN → MSN
- Foreign Trained MD → MD or RN
- Foreign Trained RN → RN → MSN → DNP
- RN → BSN → MSN → DNP/PhD

These different educational pathways are represented in the “California Nursing Education Highway” graphic below. This model was developed by CINHC.



It is important to note that any of these pathways are likely to be successful and yield a significant number of nurses only if all pathways adopt new education models of seamless progression, standard prerequisites, and access to/provision of primary care residencies.

EDUCATION AND TRAINING CAPACITY AND INFRASTRUCTURE

CINHC, California Governor Edmund G. Brown, Jr. (Governor) and California State Agencies, along with higher education, worked hard for ten years to fund and develop expanded nursing capacity in California. Capacity increased by almost 60% during the past six years. Despite these increases, it is anticipated that the capacity of the nursing education pipeline is insufficient to meet future demands for RNs and APNs (California Board of Registered Nursing, 2011c; California Institute for Nursing and Health Care, 2011; California Board of Registered Nursing, 2011d). Previously mentioned concerns about the potential for reducing nursing educational capacity due to current temporary economic circumstance could create even greater capacity challenges. Ideally, schools of nursing would be committed to a collaborative model of nursing education and allow students and graduates a seamless progression from an Associate's Degree in Nursing (ADN) to BSN to MSN, as well as doctoral programs.

As of 2010, there were 138 schools of nursing in California, which represented an increase of 35 new schools since 2004. These schools graduate 10,256 students annually. Of these, 7,075, or 67% of all new nurses, are ADNs. This represents a 56% increase in capacity since 2004. BSN's

represent 2,788 graduates and Entry-Level Master’s (ELM) represent 663 graduates. Together, this is a 148% increase in BSN/ELM capacity since 2004. Finally, private universities and colleges have increased their capacity for nursing training by 150% since 2004 (California Board of Registered Nursing, 2011c).

ACADEMIC AND HEALTHCARE INDUSTRY SKILL STANDARDS

There are many skill standards for the nursing workforce, depending on an individual’s progression in the career pathway. The major requirements and checkpoints are summarized below.

- A national examination (National Council Licensure Examination (NCLEX)) is required for licensure. Completion of a curriculum at a Board of Registered Nursing-approved school of nursing is required to sit for the NCLEX examination.
- Quality and Safety Education for Nursing (QSEN) has developed competencies agreed by educational leaders and employers to be built into the curriculum for all nursing programs. These competencies are now requirements of a BSN education.
- Certification is required by some specialties and preferred by others.
- A BSN is required for nursing positions in public health, school nursing, case management, and chronic disease management.
- The increasing complexity of the health care delivery system is driving a need for more nurses educated at the BSN level or higher.
- Master’s-level education is required for APN and for teaching in a BSN program.
- Master’s-level education is preferred for management positions.
- There is a new national standard calling for APNs to be educated at the doctoral level.
- Graduate-level programs require doctoral prepared faculty.

AVAILABILITY OF CAREER INFORMATION AND GUIDANCE COUNSELING

Extensive career information and guidance counseling for nursing is available in California. Unfortunately, it is not inventoried or summarized. Given the limited time available to complete the project, this information was not developed.

PILOT/DEMONSTRATION PROJECTS

The pilot/demonstration projects identified by the Career Pathway Committee as priorities for the nursing pathway are identified below.

Table C-3. Primary Care Nurses Pilot/Demonstration Projects

DESCRIPTION OF PILOT/DEMONSTRATION PROJECT
<ul style="list-style-type: none"> • Nurse managed clinics with both APN and RNs. • Inter-professional team-based care with roles for RNs that include case management, chronic

Table C-3. Primary Care Nurses Pilot/Demonstration Projects

disease management, etc.

- Support of nurse managed clinics with tele-medicine for consulting physicians.
- New models of clinical education for student nurses that are based in community settings.
- For graduates who participate in a transition to practice program for home health positions, waiver by DHS of requirement to serve as a nurse for one year.
- Replicate the demonstration programs underway for the “collaborative model of nursing education;” make these part of the statewide approach to nursing education by instituting throughout all California community college nursing programs.
- Baccalaureate degree conferred in community colleges with evaluation of outcomes.
- Residencies for APNs, similar to medical education.

Appendix D. Clinical Laboratory Scientists

Background Information

CURRENT SITUATION AND FUTURE NEED

Clinical laboratory scientists (CLSs) are vital to the delivery of patient care in all settings, are a top priority area for hospitals and the biotechnology industry, and were identified as such in the regional focus groups conducted by the Council in the Winter/Spring 2011.

There is a current shortage of CLSs in California. From 1999 to 2001, the number of CLSs in California decreased from 36,000 to 26,000. National CLS vacancy rates are 7%; these are most pronounced at over 10% in rural hospitals and hospitals with fewer than 100 beds. California is in the bottom seven states in terms of CLSs per 100,000 population. In fact, California hospitals report an average of three CLS vacancies in 2007; this was predicted to increase to four per hospital by 2010. This represents a vacancy rate of 30% overall, which is significant as it takes hospitals an average of six months to fill a CLS vacancy.

The future projections for CLSs show a continued, and even more severe, workforce shortage. It is expected that the need for allied health professions in general will increase by 26% in less than ten years. The CLS gap is at the top of this list, with a projected shortfall of 559% in next ten years. Nationally, the CLS population is aging, with only two new CLSs entering the field for every seven facing retirement. In California, the average age of a CLS is over 50 years.

The U.S. Bureau of Labor Statistics projects that by 2012 the United States will need 69,000 more CLSs and 68,000 more Medical Laboratory Technicians (MLTs) than needed in 2002. This represents 13,700 new professionals each year. However, US education programs currently produce 4,500 graduates annually, leading to a shortfall of 9,200 each year.

The current and projected future shortage of CLSs has wide-ranging impacts on the delivery of primary care. In particular, this shortage results in decreased in-house capacity which leads to increased costs for hospitals. These higher costs manifest in many ways, including: increased costs for recruitment of new CLSs; the costs of sending tests to external laboratories when demand exceeds in-house processing capacity; testing delays; increased errors such as mislabeling of specimens and conducting incorrect tests; and, increased cost for California as lab work is sent to out-of-state processing centers. The final item also has an adverse economic impact on small hospitals and communities.

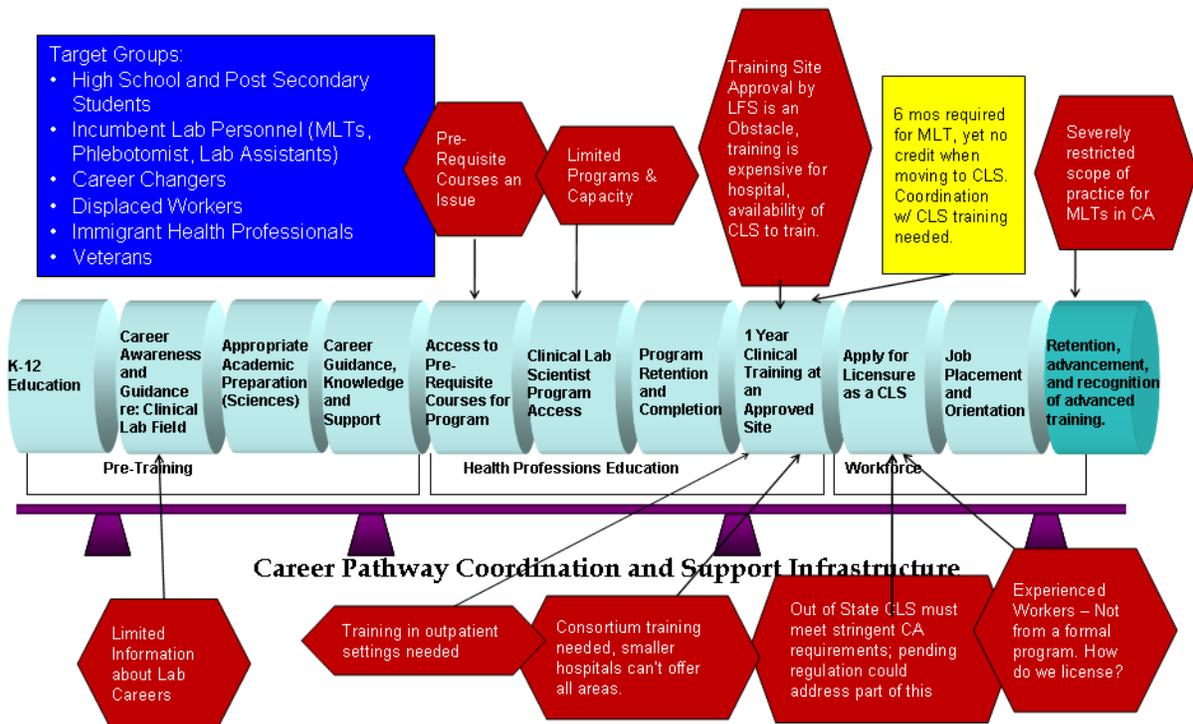
In response to the CLS importance and shortages, the California Hospital Association and Hospital Council of Northern California formed the Health Laboratory Workforce Initiative (HLWI). Lead by the Hospital Council, HLWI has brought together key stakeholders from hospitals, higher education, government agencies, biotech and others to assess the CLS challenges in California and develop recommendations. HLWI has been working on these issues for many years. Cathy Martin, Director of Workforce for the Workforce Coalition of the California Hospital Association, took the lead in working with HLWI experts to develop and propose the pathway, barriers and recommendations for CLS. The pathway and recommendations below were modified by the Committee and are proposed for approval by the Council.

Pathway and Components

VISUAL DEPICTION

The pathway below represents the final system pathway developed for CLSs in California. The barriers and recommendations developed are detailed in the following section.

Clinical Laboratory Scientist Workforce System Pathway



Adapted from the coordinated health career pathway developed by Jeff Oxendine.

BARRIERS AND RECOMMENDATIONS

The barriers identified in the pathway model are addressed below, accompanied by recommendation(s) to address these barriers.

Table D-1. CLS Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
<ul style="list-style-type: none"> • Pre-requisite courses challenges 	<p style="text-align: center;">Standardization of Prerequisite Courses</p> <ul style="list-style-type: none"> • Standardize prerequisite courses across the health sciences, including those required to become a licensed CLS or MLT. • Support increasing math and science skill sets by helping people start to identify and take prerequisites at lower levels and providing opportunities to help people obtain those skills.
<ul style="list-style-type: none"> • Out of state CLS must meet stringent California requirements 	<p style="text-align: center;">Harmonize Educational Requirements with National Standards</p> <ul style="list-style-type: none"> • Currently, in order to become licensed as a CLS in California, one must not only pass a national exam, but must also meet state-specific requirements regarding specific course work. Some of these additional course requirements are outdated and unnecessary for functioning as a CLS in a clinical laboratory today. • Align educational requirements in California with national requirements, and make them competency-based instead of based on specific course requirements. This would include offering a test in lieu of additional course work and create a pathway for licensed out-of-state laboratory personnel seeking employment in California. • Pending new regulations could address part of this; legislation may also be necessary.
<ul style="list-style-type: none"> • Consortium training needed, smaller hospitals can't offer all areas • Training site approval by LFS is an obstacle, training is expensive for hospital, availability of CLS to train 	<p style="text-align: center;">Alleviate Barriers Related to Clinical Training</p> <ul style="list-style-type: none"> • Requirements for licensure as a CLS in California: Bachelor's degree and 12-month internship training program that has been approved by the California Department of Public Health's (CDPH's) Laboratory Field Services (LFS). • This is generally provided by: <ul style="list-style-type: none"> ○ Educational programs provide curriculum and accreditation ○ Programs partner with hospitals to provide the clinical training opportunities through clinical rotations and preceptors • Currently, an insufficient number of clinical training opportunities are available to meet demand. This is due to various reasons, including state approval requirements, required hospital resources (it is very expensive, time consuming and requires ample space for multiple students), mentor-to-student ratio requirements, and the inability of some hospitals to offer training in all areas. • Examine and pilot innovative models of training and delivery.

Table D-1. CLS Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
	<ul style="list-style-type: none"> ● Explore option of allowing free-standing labs to serve as training sites. ● Explore expansion of demonstration projects that utilize a consortium model for training CLSs. Allow students to rotate through more than one hospital to gain required clinical training needed for licensure. ● Allow multiple hospitals to be approved to train as a consortium, enabling them to leverage resources such as staff, space, and expertise; this will ease the burden that might otherwise fall on a single hospital. ● Research and develop a compelling business case for hospitals, biotech firms, and free-standing labs to make a short-term investment in training programs to address the long-term costs of workforce shortages. ● Create a Task Force, with HLWI as well as other representation, to identify and articulate workforce needs for biotech firms and free-standing labs, in addition to hospitals, to have a comprehensive picture of expected workforce shortages. ● Design and create programs to train students for any CLS role, including the needs of hospitals, biotech firms, and free-standing labs. ● Develop plan and work with CDPH and LFS to reduce the time for processing training site approvals and enhance communication throughout the process. Track and report on LFS approval times. ● Explore regulatory and legislative changes based on existing stakeholder comments and new models to reduce the cost of training.
<ul style="list-style-type: none"> ● Limited Programs and Capacity 	<p>Develop Innovative Models for Accredited Education and Training of Allied Health Professionals</p> <ul style="list-style-type: none"> ● Develop new and more articulated and accelerated pathways for MLT to CLS. ● New, innovative models of educating and training clinical laboratory professionals must be developed, especially in order to build a solid health laboratory workforce to serve rural and remote regions of the state. ● For example, expanded, innovative use of technology can increase access to health science courses and provide opportunities for more students to pursue a laboratory career. ● This is especially true for accessing prerequisite courses, which have high demand but limited capacity. ● Use technology to address some of the clinical portions of training;

Table D-1. CLS Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
	e.g., through simulation exercises or virtual access to clinical mentors. <ul style="list-style-type: none"> • Develop and evaluate Innovative pilot programs to address capacity issues and geographic barriers. • Assembly Bill 2385 authorizes the establishment of innovative pilot programs for nurses and allied health professionals such as CLSs. • Secure funding to make demonstration projects a reality.
<ul style="list-style-type: none"> • Limited Information about Lab Careers 	<ul style="list-style-type: none"> • Promote existing resources related to lab careers and distribute through existing and new channels to reach target groups. Invest in greater promotion. • Utilize on-line resources, materials and career guidance resources. Create new resources if needed. • Feature CLS and MLT in Health Jobs Start Here and other existing resources.
<ul style="list-style-type: none"> • Not clear how to license experienced workers who are not from a formal program 	<ul style="list-style-type: none"> • Develop competency-based tools to train, assess and license workers who have appropriate experience.
<ul style="list-style-type: none"> • Insufficient infrastructure to support CLS and overall lab workforce development 	<ul style="list-style-type: none"> • Increase funding for infrastructure for CLS workforce development including staffing and program funding support for initiatives such as HLWI and others that would include broader health organization and biotech participation. • Develop and implement mechanism for CLS workforce forecasting, supply and tracking. Consider for inclusion in OSHPD Health Care Workforce Clearinghouse Program. • Explore potential linkage with public health lab workforce needs.
<ul style="list-style-type: none"> • Restricted MLT scope of practice compared to other states and California lab workforce needs 	<ul style="list-style-type: none"> • Review MLT scope of practice and regulations to explore possibilities for expansion.

INDIVIDUAL PATHWAYS

Individual pathways for CLS were not available. Given the limited time for the project they were not developed.

EDUCATION AND TRAINING CAPACITY AND INFRASTRUCTURE

The current educational capacity for CLSs and MLTs in California is of significant concern.

Table D-2. CLS Education and Training Capacity and Infrastructure

DEGREE	REQUIREMENTS	NUMBER OF CALIFORNIA PROGRAMS	CLASS SIZE	NUMBER OF GRADUATES	PROJECTED ANNUAL OPENINGS, 2006-2016
CLS	Bachelor's degree plus 1 year additional training	13 (4 academic, 9 hospital-based)	2-30	<ul style="list-style-type: none"> •2007: 119 graduates •2008: 125 graduates 	390
MLT	Community college training	5 (1 operating at time of data)	5 (for 1 program)	•5 (for 1 program)	340

In comparison to California's training capacity, Texas has a population that is two-thirds the size of California's, but twice as many training programs that produce five times as many graduates. Michigan has half the population of California but has 12 training programs total that produce three times as many graduates as California's programs (Linder and Chapman: "The Clinical Laboratory Workforce in California," 2003).

The existing programs limit the number of students they can train based on limited clinical training sites. The reasons for few clinical training sites include the following:

- Long approval time from the state (LFS).
- Program requirements are so prescriptive that the application is a deterrent for sites to consider offering spaces to students.
- Staffs are stretched thin even when training is for just the clinical portion. There is a required 1:1 ratio for trainees to preceptors, as required by LFS.
- The cost to the organization to train CLSs is substantial, reportedly over \$50,000 per individual trained.
- Many smaller labs currently cannot offer training programs because they offer a limited scope of services, thus rendering them unqualified to offer training slots even for those services they do provide.

ACADEMIC AND HEALTHCARE INDUSTRY SKILL STANDARDS

Academic and healthcare industry skill standards for CLS were not available. Given the limited time for the project they were not developed.

PILOT/DEMONSTRATION PROJECTS

The pilot/demonstration projects identified by the Career Pathway Committee as priorities for the CLS pathway are identified below.

Table D-3. CLS Pilot/Demonstration Projects

DESCRIPTION OF PILOT/DEMONSTRATION PROJECT
<ul style="list-style-type: none">• Explore expansion of a demonstration project that utilizes a consortium model for training CLSs. Allows students to rotate through more than one hospital in order to gain required clinical training needed for licensure.• Review DeAnza College-San Jose State Articulation Model and consider lessons learned and expansion possibility.

Appendix E. Medical Assistants

Background Information

CURRENT SITUATION AND FUTURE NEED

Currently, there are 76,100 medical assistants (MAs) employed in California. MAs represent roughly half of all clinical support staff utilized at clinics throughout the state. While MAs may perform virtually any administrative duty, they must work under direct physician supervision at all times and their clinical responsibilities are restricted by law. In fact, California law prohibits “medical assistants” from working in inpatient or general acute-care settings. However, a number of individuals work in hospitals using similar skills but under different titles. MA utilization varies by region, clinic size, and clinic delivery model and workflow design.

In California, the MA role is among the fastest growing occupations and is projected to have large numbers of annual job openings. Between 2008 and 2018, 31,820 MA job openings are projected. This includes 23,300 new jobs, a growth increase of 30.6%. There is not a shortage of applicants, but there is a demand for higher skilled, better-prepared applicants. Additional data to establish a projection of need, stratified across factors such as age, job classification (e.g., administrative versus clinical, levels based on experience), geographies, and race/ethnicity will further help project the need for this workforce.

As access to primary care services and coverage increases under healthcare reform, MAs will be a critical component of that growth and development. MAs play a key role in the team model of care defined by the PPACA and now being expanded in many community clinics and healthcare settings. In medical home settings, some employers are also expanding MA roles with additional cross-training and responsibility in areas such as chronic disease management, database administration, and patient education. Expanded roles and advancement opportunities can include pre-visit planning, Health Coach, Patient Navigator, Immunization Specialist / Vaccine Coordinator, Referral Coordinator, Panel Coordinator, Health Educator, Diabetes Follow-up Coordinator, Family Planning Specialist, Lead MA, Team Coordinator, MA Trainer, Electronic Health Record “Super-User”, and Emergency Preparedness Coordinator. In expanded roles, medical assistants can gain valuable transferable experience that is applicable to other future career pathway opportunities such as RN, HIT, and Community Health Worker.

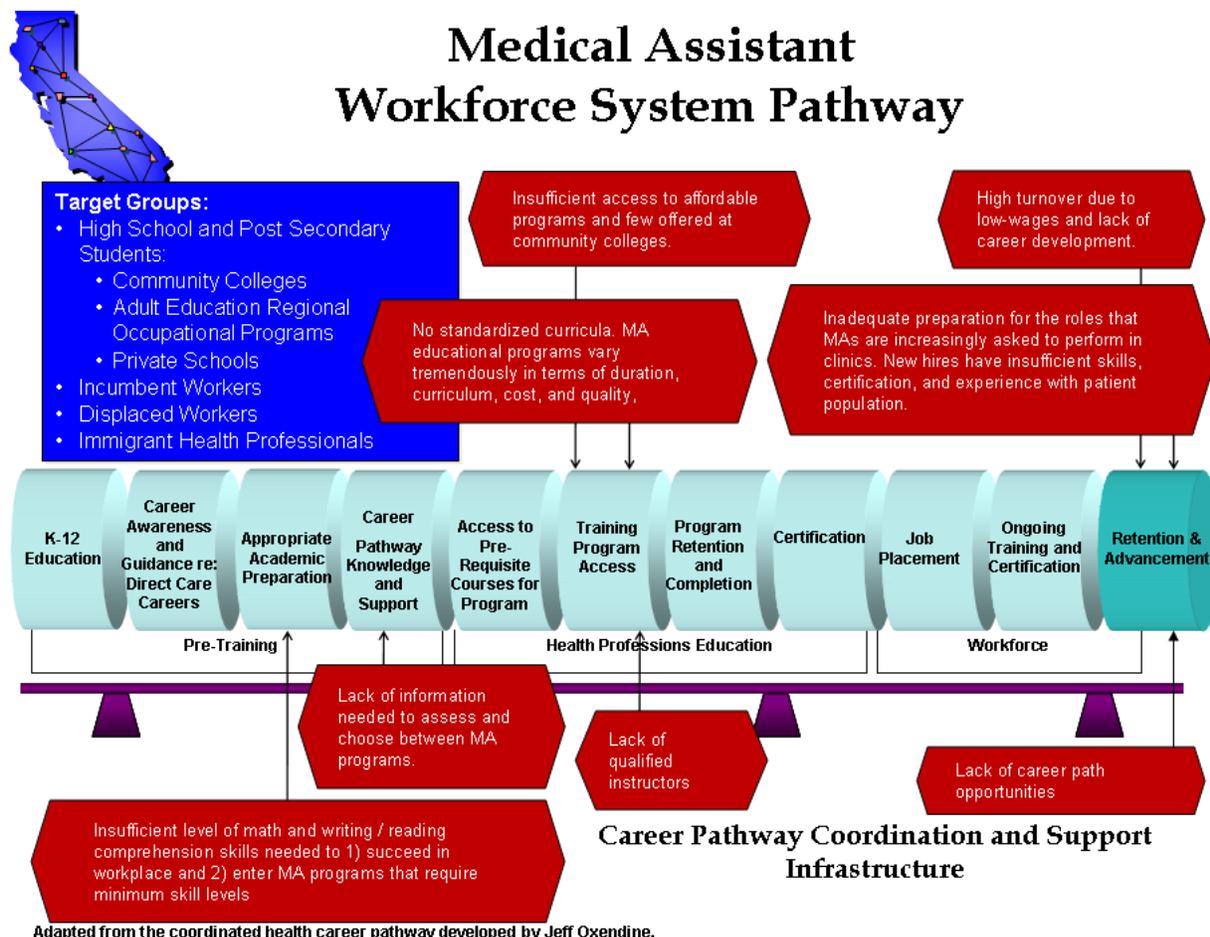
Diane Factor, from SEIU, took the lead on development of the medical assistant pathway. SEIU had done considerable work on medical assistant educational and workforce issues. She worked closely with Linda Zorn from the California Community Colleges Health Workforce Initiative, and Caryn Rizell from the California Primary Care Association to develop the pathway and

recommendations. She also consulted with the California Society of medical assistants and major health employers in development of the pathway. The Committee vetted and modified the pathway and recommendations and is proposing them as summarized below for Council approval.

Pathway and Components

VISUAL DEPICTION

The pathway below represents the system pathway developed for medical assistants in California. The barriers and recommendations developed are detailed in the following section.



BARRIERS AND RECOMMENDATIONS

The barriers identified in the pathway model are addressed below, accompanied by recommendation(s) to address these barriers.

Table E-1. Medical Assistant Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
<ul style="list-style-type: none"> ● Insufficient math, writing / reading comprehension, and computer skills needed to: <ol style="list-style-type: none"> 1. Succeed in workplace and expanded roles, or 2. Enter MA programs that require minimum skill levels. 	<ul style="list-style-type: none"> ● Support short academic “bridge” programs providing contextualized basic skills preparation for pre-MA students. ● Establish guidelines for programs to either integrate basic academic skills in their curriculum or require a contextualized “bridge” basic skills programs for pre-MA students.
<ul style="list-style-type: none"> ● Lack of information needed to assess and choose between MA programs, which vary widely in terms of cost, accreditation, and applicability to current workplace needs. 	<ul style="list-style-type: none"> ● Support enhancement of existing websites (explorehealthcareers.org, healthjobsstarthere.org, ca-hwi.org) with accurate, comprehensive information about programs, including location, cost, accreditation and curriculum content. ● Make information available to workplaces, colleges, and other points of career counseling.
<ul style="list-style-type: none"> ● Insufficient access to affordable programs and relatively few offered at community colleges. 	<ul style="list-style-type: none"> ● Increase public sector’s (community college) regional training capacity for MA programs. ● Align educational programs to needs of students. ● Document best practice programs. ● Prioritize MA in workforce development programs with employer guidelines. ● Examine geographic distribution of training programs, noting public, private, and proprietary programs. ● Support adult learners through evening, weekend, and distance learning programs. ● Increase awareness of public training programs such as community colleges and Regional Occupational Centers and Programs.
<ul style="list-style-type: none"> ● No standardized curricula. MA educational programs vary tremendously in terms of duration, curriculum, cost, and quality. 	<ul style="list-style-type: none"> ● Support the Commission on Accreditation of Allied Health Education Programs (CAAHEP) programmatic accreditation, the highest quality accreditation for MA curricula. ● Promote increasing the number of MA training programs in California accreditation by CAAHEP. ● Partner with proprietary schools around accreditation standards. ● Examine policies to enforce adoption of competency-

Table E-1. Medical Assistant Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
<ul style="list-style-type: none"> • New hires and recent graduates often do not have the skills, certification, and/or experience with patient population that employers need, particularly in medical home settings. Employers must re-train new hires. 	<p>based curriculum.</p> <ul style="list-style-type: none"> • Develop MA programs that train to the competencies required by employers. Update program guidelines / curricula with input from primary care providers preparing for PPACA implementation. • Improve and expand clinical training. Link education to on-the-job training, apprenticeships, and internships. • Fund work-based learning innovation projects such as apprenticeship programs (which allow employers to help design an on-the-job training that is supported by classroom learning). • Convene partners to provide support services to participants. • Align partners around emerging skill needs in sector. • Update Community College Health Workforce Initiative Model Curriculum with new competencies required by employers.
<ul style="list-style-type: none"> • Lack of career path opportunities. • High turnover due to low-wages and lack of career development. 	<ul style="list-style-type: none"> • Support partnerships between educators and employers to facilitate advancement of MAs into healthcare career paths, and into expanded roles and a career ladder--such as MA-I, MA-II, MA-III--based on increased job responsibilities, supervisory role, and internal projects. <ul style="list-style-type: none"> ○ Determine a process for establishing salary increases commensurate with career progression. • Articulate MA career paths into other occupations, such as licensed vocational nurse (LVN) and RN. • Support career counseling--including career mapping and navigation information--for incumbent MAs as well as prospective MA students. • Provide preceptors and mentors. • Explore ways that employers and colleges can give credit for on-the-job experience, in order to facilitate advancement along career paths. Allow students to test out of competencies. • Examine impact of educational debt on students and graduates in relationship to average compensation and employment.

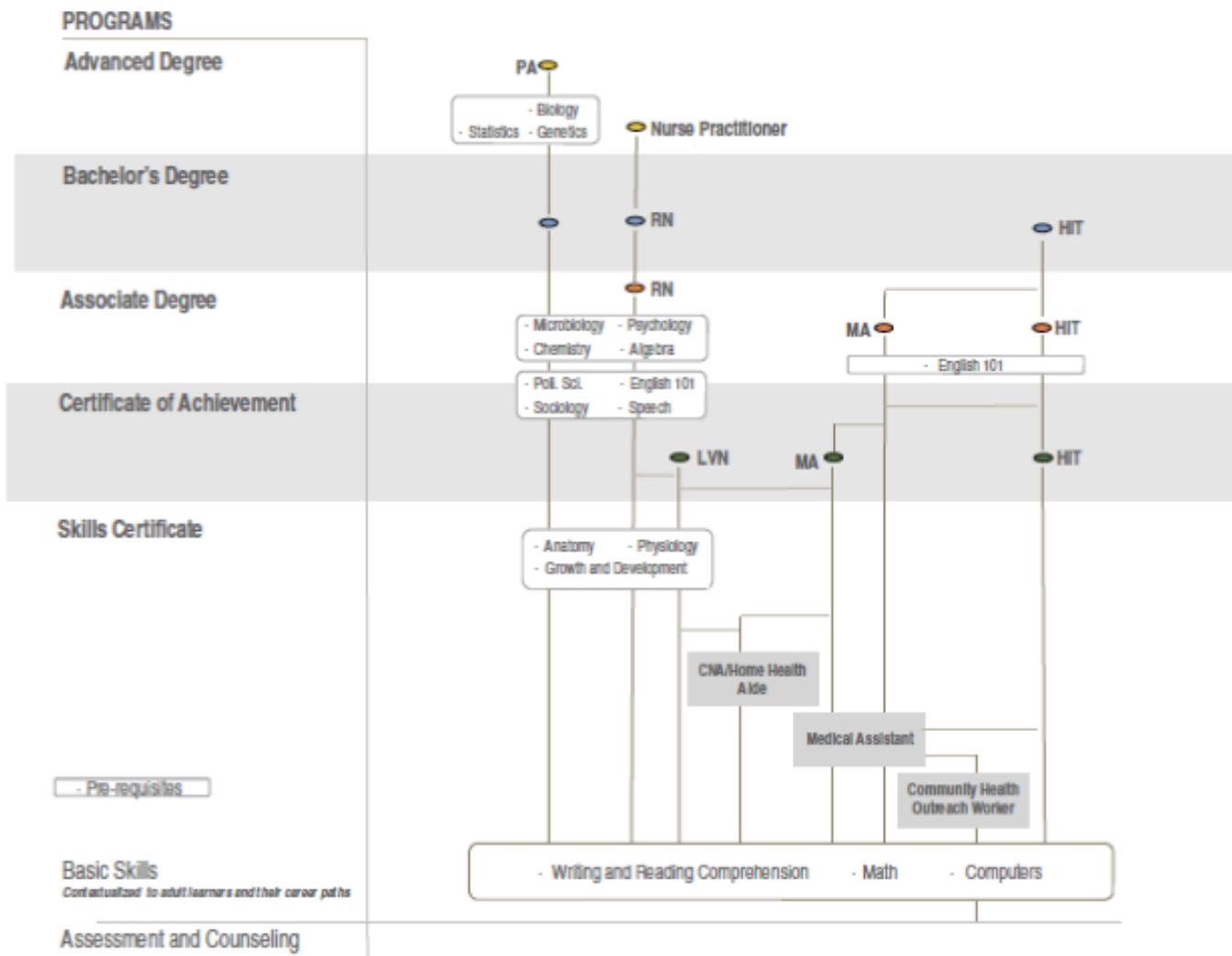
INDIVIDUAL PATHWAYS

Individuals can enter the medical assistant career workforce at many points. They may do so as a Certified Nursing Assistant (CNA), Home Health Aide, Clerk, Community Health Outreach Worker, community college student or graduate, veteran, high school graduate, or foreign health professional.

Their pathways can include the following:

- Diploma, certificate, or associate’s degree in medical assisting
- MA-I, MA-II, MA-III
- LVN
- RN
- Social worker
- Mental health worker
- Health information technology (HIT)

This is represented in the graphic below.



EDUCATION AND TRAINING CAPACITY AND INFRASTRUCTURE

Eighty-seven schools in California offer medical assistant programs at approximately 137 campuses. Forty-four of these locations are community colleges. Two are Regional Occupational Centers. Nearly all schools offer diploma or certificate programs. Community college programs often offer associate's degree programs as well. 30% of the campuses offer programs with national accreditation from CAAHEP or the Accrediting Bureau of Health Education Schools (ABHES).

The Health Workforce Initiative has a statewide medical assistant curriculum available based on a Developing a Curriculum (DACUM) job analysis, validated by its industry advisory board, and cross-referenced with the skills and competencies for the certified medical assistant (CMA) exam.

Given the current training capacity and demand, the expert committee submitted a recommendation to increase the number of community college programs based on industry partnerships and update the DACUM job analysis for MA. This would be further strengthened by standardizing the competency-based curriculum leading to CAAHEP accreditation.

ACADEMIC AND HEALTHCARE INDUSTRY SKILL STANDARDS

The medical assistant role is an entry-level position. There is currently no credential or license requirement, and education and certification are voluntary. Most MAs in California have on-the-job training only. Of all MA program graduates in California, over 86% are from private, for-profit schools. Among these schools, there are no standardized curricula. MA educational programs vary tremendously in terms of duration, curriculum, cost, and quality, so the skills and preparation of graduates correspondingly vary. Most MA programs award diplomas or certificates. Some associate's degree programs are available. Most community college programs require a math and reading assessment exam and pre-requisite courses. Requirements vary by school and sometimes by credential (certificate vs. associate's degree). Most private schools do not have assessment or pre-requisite requirements.

Only approximately 12% of MAs in California are certified. Employer views on certification vary. One concern is that MAs are not properly trained for the primary care, clinic environment. Some large employers require certification and indicate a preference for CAAHEP-accredited schools. Combined clinical and administrative competencies are preferred. Cultural competency,

bilingual skills, communication, and electronic medical record and database proficiency, among other skills, are especially important in the medical home model.

In terms of certification, there are several options available. These are summarized below.

Table E-2. Medical Assistant Certifications

TYPE OF CERTIFICATION	TITLE	DESCRIPTION
<ul style="list-style-type: none"> National 	<ul style="list-style-type: none"> <i>Certified medical assistant (CMA),</i> Certifying Board of the American Association of Medical Assistants (AAMA) 	<ul style="list-style-type: none"> Must complete an MA program that has programmatic accreditation from CAAHEP or ABHES. Must pass exam given by AAMA. Exam contains both administrative and clinical content.
<ul style="list-style-type: none"> National 	<ul style="list-style-type: none"> <i>Registered medical assistant (RMA),</i> American Medical Technologists (AMT). 	<ul style="list-style-type: none"> More general requirements than CMA. Completion of MA Program not required. Must have (1) five years of experience in medical assisting or (2) completed program from an MA program with either programmatic (CAAHEP or ABHES) or institutional accreditation (Western Association of Schools and Colleges etc.) Must pass exam administered by AMT. Exam contains both administrative and clinical content.
<ul style="list-style-type: none"> State 	<ul style="list-style-type: none"> <i>California certified medical assistant (CCMA) (via the California Department of Public Health).</i> 	<ul style="list-style-type: none"> Most general requirements. Completion of MA program not required. Three certifications: Administrative and Clinical (CCMA-AC), CCMA-Administrative (CCMA-A) or CCMA-Clinical (CCMA-C), California Certifying Board for Medical Assistants (CCBMA). Must be (1) current MA or (2) previously employed MA with two years of experience or (3) have completed program that has either programmatic accreditation or institutional accreditation (nine accreditations are acceptable, including Western Association of Schools and Colleges, Accrediting Council of Continuing Education and Training, Accrediting Council for Independent Colleges and Schools.) Must pass exam administered by CCMA. CCMA-C requires proficiency in venipuncture and/or injections verified by instructor or physician who supervises candidate at work.

Given the great variation in types of certifications, as well as inconsistency in certification of medical assistant professionals, three recommendations were identified for certification of this career workforce:

- Educate employers about the national CAAHEP accreditation--the “gold standard” for combined clinical / administrative MA programs. Support the development of standardized competency-based curriculum leading to this accreditation.
- Provide prospective MA students with information about certification and accreditation.
- Cross-reference the current Health Workforce Initiative curriculum model with new competencies required by patient-centered medical homes and other expanded roles.

AVAILABILITY OF CAREER INFORMATION AND GUIDANCE COUNSELING

Career information and guidance for medical assistants is provided via the following sources:

- Websites
- Information at colleges
- Employers
- Labor unions
- Workforce agencies
- Libraries
- High schools
- Community based organizations

PILOT/DEMONSTRATION PROJECTS

The pilot/demonstration projects identified by the Career Pathway Committee as priorities for the medical assistant pathway are identified below.

Table E-3. Medical Assistants Pilot/Demonstration Projects

DESCRIPTION OF PILOT/DEMONSTRATION PROJECT
<ul style="list-style-type: none">• Partnership with employers and labor to design program for specific needs.• Work-based learning or apprenticeships to prepare students for emerging roles.• “Proactive office encounter” model, in which medical assistant is the main patient contact.

Appendix F. Community Health Workers/Promotores

Background Information

CURRENT SITUATION AND FUTURE NEED

Community health workers (CHWs)/Promotores represent a large pool of individuals in California; there are estimates that range up to 9,000 employed workers statewide. These workers are employed in community non-profit agencies including community clinics, and local health departments, state agencies that have outreach programs and health plans, particularly those with publicly subsidized coverage. These very agencies will also be heavily involved with providing care through PPACA. The recruitment and retention of CHWs/Promotores is a task with many challenges. Yet, there are thousands of other CHWs/Promotores who are volunteers, often with limited English skills and high school or lower educational levels. Many in this pool will choose to upgrade their core education and language skills in the face of expanded job opportunities. Many currently employed CHWs will choose to upgrade their skills to fill a variety of higher skill level roles under PPACA implementation. To increase the current pool (once PPACA outreach funding becomes available), a comprehensive approach will be needed to target high school graduates and displaced workers. This pool of applicants will benefit from this opportunity to serve the community and use this as a career ladder to other careers in the health care industry. The existing literature shows a wide diversity of roles and responsibilities for CHWs. CHWs provide health education and serve as a role model and community advocate. The Community Health Worker National Workforce Study, conducted by the Health Resources and Services Administration (HRSA), grouped CHW roles into the following categories: (1) member of care delivery team; (2) patient navigator; (3) screening and health education provider; (4) outreach-enrolling information agent; and, (5) community organizer. Lack of standardized procedures for CHWs/Promotores selection and training has resulted in limitations and competencies of CHWs/Promotores. Therefore, comprehensive evaluation needs to take place by region to determine the career opportunities for CHWs/Promotores, standards for training curriculum, selection process, and competency standards, including advancement through a career ladder.

The expansion of enrollees under Medi-Cal will increase by up to 3 million individuals (Cabezas and Laverreda). Up to four million individuals could be enrolled by 2015 through the Basic Health Plan and the coverage offered through the California Health Benefits Exchange. As noted above, the very agencies that currently employ CHWs as members of their outreach and intervention teams will be the vehicles for delivering much of the expanded health care under PPACA in California. There are not yet firm estimates from the research community, but the Promotores Task Force convened by CPAC for the Committee expected a doubling of CHWs in the state to help engage with all currently underserved populations (Latino and non-Latino),

including the working poor in the thousands of small businesses expected to be most impacted by PPACA.

Gil Ojeda and Perfecto Munoz of the California Program on Access to Care (CPAC) convened a nine person Promotores Workgroup to examine and develop the Community Health Worker (CHW)/Promotores career pathway. Members of this workgroup included:

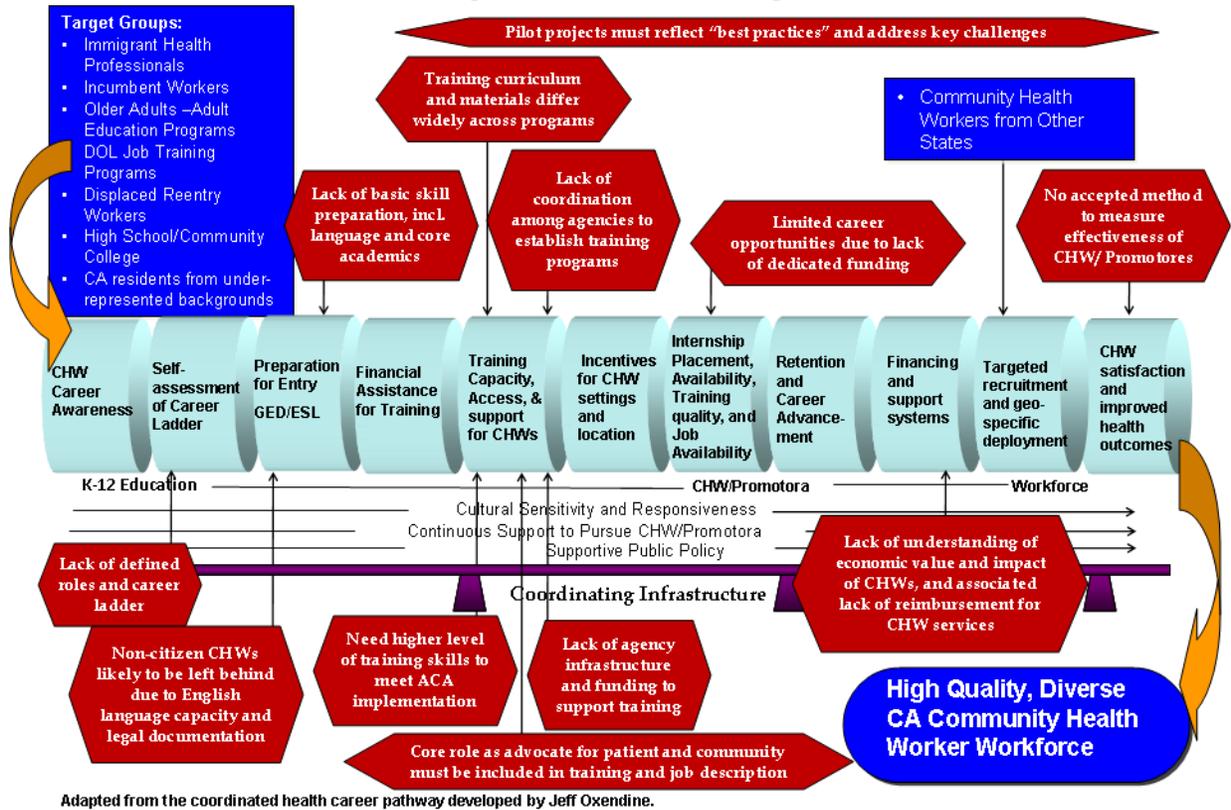
- Alma Avila, City College of San Francisco;
- America Bracho, MD, Latino Health Access;
- Arturo Carmona, CoFEM;
- Xochitl Castaneda, HIA-UC Berkeley;
- Melinda Cordero, Vision y Compromiso;
- Julie Hernandez, Proteus;
- Lupe Nunez, Tiburcio Vasquez Health Center;
- Helda Pinzon Perez PhD, Professor, CSU Fresno;
- Josefina Ramirez; and,
- Assembly Member Manuel Perez.

Pathway and Components

VISUAL DEPICTION

The pathway below represents the final system pathway developed for community health workers (CHWs)/promotores in California. The barriers and recommendations developed are detailed in the following section.

Community Health Worker/Promotores Workforce System Pathway



BARRIERS AND RECOMMENDATIONS

Several priority pathway challenges were identified. Many of these are addressed in the table below as detailed barriers identified in the pathway model, accompanied by recommendation(s) to address these challenges.

Table F-1. CHW/Promotores Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
<ul style="list-style-type: none"> Insufficient CHW training facilities; capacity is limited by the lack of coordinated efforts by agencies using CHWs to establish training programs 	<ul style="list-style-type: none"> Improved dialogue among CHW using agencies leading to expand the number of Training Facilities through community colleges and through Department of Labor (DOL)–supported and other Congressional Budget Office Job Training Programs. Certify existing, community-based, non-profit programs such as Latino Health Access.
<ul style="list-style-type: none"> Training curriculum and 	<ul style="list-style-type: none"> Building on existing Community College programs and other

Table F-1. CHW/Promotores Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
<p>materials differ widely due to different service perspectives and training approach. Leads to need for standardized core curriculum and materials</p>	<p>well-accepted CHW training programs; there must be effort to standardize core competencies for employed CHWs, leading to regional standards or State credentialing. Pursue partnerships to establish core competencies as well as a curriculum model.</p>
<ul style="list-style-type: none"> • Career opportunities are limited primarily due to lack of dedicated funding 	<ul style="list-style-type: none"> • Efforts must be made to urge Adult Education Programs to inform applicants of opportunities available as CHWs beyond coordinating with CHW service agencies. • Urge agencies that typically use CHWs to expand and strengthen funding streams from existing sources and to aggressively pursue multiple funding streams available under PPACA.
<ul style="list-style-type: none"> • Lack of defined roles and career ladder 	<ul style="list-style-type: none"> • Define the many different CHW roles in the paraprofessional community. • Identify fundamental and formal educational training at California Community Colleges, Community Health Centers, California Department of Public Health and community based organizations. • Educate CHWs on their role in population health and community problem-solving, and define the differences between community and in-clinic health workers. • Define career ladders, acknowledging that some individuals will want to stay at an entry level position in the community, and others may use this as an entry into other health careers (e.g., nursing). • Define vision for the whole system (e.g., community-based), and the CHW role within that system. • Incorporate education around CHW/Promotores roles into medical provider schooling.
<ul style="list-style-type: none"> • Perceived lack of economic value and impact of CHWs • Cost reimbursement for CHW services 	<ul style="list-style-type: none"> • Assess the value of CHW/Promotores as an economic engine in the form of job innovation for entry-level opportunities within health sector. • Develop a model to integrate CHWs into systems, designed as an entry training point. Assess impact of the CHW/Promotores workforce in local economies. • Develop recommendations to include the incorporation of CHWs/Promotores as members of the care teams. • Develop demand model to determine supply and demand for CHW/Promotores. • Examine evidence via existing programs (e.g., Minnesota, Texas) for models on reimbursement for CHWs as a cost reduction measure in patient care teams.
<ul style="list-style-type: none"> • Language proficiency in non- 	<ul style="list-style-type: none"> • Expanded offering of ESL and medical terminology classes to

Table F-1. CHW/Promotores Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
citizen CHWs	those CHWs with limited English skills through Community Colleges and DOL-supported and other CBO Job Training programs. <ul style="list-style-type: none"> ● Expanded linkage between job training agencies and CHW service agencies with citizen naturalization programs to address the needs of CHWs regarding legal status. ● Clarification of roles/situations in which English language requirements matter. In particular, this will be most important when CHWs serve as a linkage to systems, and when they are part of the primary care team.
<ul style="list-style-type: none"> ● Lack of infrastructure and funding to support training 	<ul style="list-style-type: none"> ● State Department of Public Health, the community colleges, and other community-based training programs must aggressively pursue infrastructure resources, largely from federal government through PPACA, to support on-going training and curriculum development. ● Work with the workforce system to align systems such as the Eligible Training Provider List (ETPL) for widespread access.
<ul style="list-style-type: none"> ● Lack of basic skills preparation among the applicant pool 	<ul style="list-style-type: none"> ● Must be broader support from Department of Labor-supported job training programs and Adult Education in the school districts and the Community Colleges to prepare the applicant pool for entry level positions in the health care industry, including CHWs.
<ul style="list-style-type: none"> ● No accepted method to measure effectiveness of training programs for CHW/Promotores 	<ul style="list-style-type: none"> ● A task force should be convened including CHW-using agencies, university researchers, Promotores networks and Community Colleges to develop a measurement methodology and determine the need for standardization, possibly leading to State credentialing. ● Conduct a job analysis to determine duties, tasks performed, and critical competencies for CHWs/Promotores.
<ul style="list-style-type: none"> ● Pilot projects needed to address “best practices” and address key challenges 	<ul style="list-style-type: none"> ● Working through the community colleges and leading Promotores groups, develop a training model geared to the high level job roles that will be in highest demand under PPACA, including patient navigator, health plan enroller, and serving as member of the patient care team. ● A two year pilot project working with up to eight “high use” CHW community health centers in rural and urban regions to assess best practices, implications of training, and standardization. ● Identify CHWs/Promotores-types of organizations and programs across a range of ethnic communities. ● Develop pilot projects within initiatives such as TCE Building Healthy Communities groups and Healthy Cities.

Additional challenges that must be considered include the following:

- Many non-citizen CHWs are likely to be “left behind” due to English language capacity and legal documentation.
- There is no accepted method of measuring the effectiveness of the CHW/Promotores.
- There is a need for higher level of training skills to undertake activities required under PPACA implementation.
- The core role of many CHWs as an advocate for the patient and for their community must be included in training and job roles.

INDIVIDUAL PATHWAYS

Individual pathways for CHW/Promotores were not available. Given the limited time for the project they were not developed.

EDUCATION AND TRAINING CAPACITY AND INFRASTRUCTURE

Most ongoing training occurs in the workers’ respective service agencies including community health centers, community-based organizations (CBOs), county public health departments, and private and publicly supported health plans. A few community colleges, Department of Labor (DOL)-supported training programs, and community health centers offer formal CHW Training Programs, including:

- City College of San Francisco
- City College of San Diego
- Proteus (Visalia)
- Latino Health Access (Orange County)
- Tiburcio Vasquez Health Center
- Health Initiative of the Americas
- Vision y Compromiso
- Central Valley Health Policy Institute-CSU Fresno

Based on the current training available, it is recommended that Federally Qualified Health Centers (FQHCs), CBOs, DOL Regional Training Centers, the Central Valley Health Policy Institute (CVHPI), and Community Colleges develop a strategic plan to coordinate training and develop capacity through PPACA and HHS funding opportunities that support the training of CHWs/Promotores. Additionally, a statewide study to determine the number of CHWs/Promotores statewide and by region would further provide justification for increased investment of resources in this career workforce.

ACADEMIC AND HEALTHCARE INDUSTRY SKILL STANDARDS

There is no common curriculum approach used to train CHWs/Promotores. The California Program on Access to Care (CPAC) recently completed a review of the literature requested by the Assembly and determined that Texas has a very comprehensive promotora curriculum supporting a limited certification program. Federal or foundation funds could be used to conduct a comprehensive review of a core curriculum and training materials for training programs to be used in California.

AVAILABILITY OF CAREER INFORMATION AND GUIDANCE COUNSELING

Community Colleges and DOL Regional Training Centers don't have the capacity to provide guidance and counseling to students regarding CHW careers. Therefore, a comprehensive approach for support of career guidance has to await the full implementation of PPACA and the expanded demand for CHWs and support for related training programs. Several additional pilot programs are under development in the community colleges.

PILOT/DEMONSTRATION PROJECTS

The pilot/demonstration projects identified by the Career Pathway Committee as priorities for the CHW/Promotores pathway are identified below.

Table F-2. CHW/Promotores Pilot/Demonstration Projects

DESCRIPTION OF PILOT/DEMONSTRATION PROJECT
<ul style="list-style-type: none">• Partnership with CPCA, the sixteen Community Clinic Consortiums, health industry and community-based organizations to develop a pilot study to review existing programs, training materials/curriculum, job market survey, and certification.• <i>Additional pilot projects identified above to address the barrier "Pilot projects needed to address 'best practices' and key problem areas."</i>

Appendix G. Public Health Professionals

Background Information

CURRENT SITUATION AND FUTURE NEED

The public health workforce includes a range of professionals such as public health clinicians (nurses, physicians, lab directors), occupational and environmental health specialists, epidemiologists, biostatisticians, health administrators, health educators, public health nutritionists, and health economists, planners, and policy analysts. They are employed by governmental public health agencies, community-based organizations, academic and research institutions, hospitals, health plans, medical groups, private industry, and global health organizations.

Public health professionals perform a wide array of functions, including assessment, assurance, and policy development. The ten essential public health services include the following.

- Monitor health status to identify and solve community health problems.
- Diagnose and investigate health problems and health hazards in the community.
- Inform, educate and empower people about health issues.
- Mobilize community partnerships and action to identify and solve health problems.
- Develop policies and plans that support individual and community health efforts.
- Enforce laws and regulations that protect health and ensure safety.
- Link people to needed personal health services and assure the provision of health care when otherwise unavailable.
- Assure competent public and personal health care workforce.
- Evaluate effectiveness, accessibility, and quality of personal and population-based health services.
- Research for new insights and innovative solutions to health problems.

The Association of Schools of Public Health estimates that 250,000 more public health workers will be needed by 2020; this represents one-third of the public health workforce. There are documented and forecasted shortages of public health physicians, public health nurses, epidemiologists, health care educators, and administrators.

The need for this workforce is particularly critical given large disparities in health indicators among racial/ethnic groups. Studies show that increasing the number of health professionals from the groups with these poor health indicators will help to eliminate the disparities. However, the National Association of County and City Health Officials (NACCHO) announced on May 24, 2010 that “from January 2008 to December 2009, Local Health Departments (LHDs) lost a cumulative 23,000 jobs due to layoffs or attrition—approximately 15% of the LHD workforce.”

In 2007, the University of California Office of the President (UCOP) issued a report regarding the supply and demand for the public health workforce. It found that the California public health workforce is "seriously deficient in training, preparation and size." California significantly lags other states in public health educational capacity. In particular, California's public health agencies cite particular shortages of epidemiologists, environmental health scientists, and health educators while the private sector is in need of professionals trained in health services management. In fact, only 20% of the current public health workforce in the state has any formal training in public health. This affects the workforce at all levels; of the state's 38 public health laboratories, only ten are led by directors with doctoral degrees, as mandated by law. Given this picture, UCOP recommends an increase of approximately 180% in masters student enrollments by 2020 and parallel increases in doctoral student enrollments from 279 students to 785 by 2020.

From the health department perspective, the California Department of Public Health (CDPH) examined workforce shortages in 2010. They found that in order to continue to provide quality public health services, it is essential that CDPH focus on its current and future workforce. Of particular concern is an increased need for new public health workforce in the face of pending retirements of current staff. According to the Department of Personnel Administration and the Human Resources Branch at CDPH, 63% of CDPH leadership and 52% of rank and file workers were eligible to retire as of April 2009 based upon age only. It is estimated that by fiscal year 2013-2014, the cumulative CDPH employee retirements among leadership (supervisors, managers, and exempt staff) will be 271, or 38% of the 713 Leadership staff. Among rank and file staff, it is estimated that 677, or 24% of the total 2879 rank and file staff, will retire. The impact of these retirements as well as promotions and normal attrition is that CDPH will face significant challenges in maintaining institutional knowledge.

Other issues affecting the supply of the public health workforce include:

- The aging of the current workforce in California and nationally
- A lack of educational opportunities for growing numbers of prospective public health professionals. There are thousands of interested undergraduates who lack particular and focused career entry points.
- A lack of educational opportunities for students from under-resourced communities.
- A shortage of public health professionals in certain disciplines.
- A lack of uniformity regarding minimal requirements and types of positions across jurisdiction and sectors.
- Competition with the private health sector for skilled resources.
- Federal healthcare reform.

At the same time as these issues affecting the supply of the public health workforce, demand for the workforce is increasing. Factors affecting the demand for this workforce include the following:

- Growth of the overall population
- Aging of the overall population
- Increasing diversity of California's population
- Emerging diseases and other public health challenges
- Fluctuating funding sources
- Healthy People 2020 implementation
- Building healthy communities initiatives in California
- Federal healthcare reform.

Of particular note is the final item, federal healthcare reform implementation. The implications of this issue for public health are significant:

- Increased focus on and investment in prevention, a major tenet and focus of the public health workforce
- Population health focus, another major tenet of the public health workforce
- Integration of public health and primary care
- Health disparities reduction

The California Public Health Alliance for Workforce Excellence (CPHAWE) is a statewide coalition of public health professionals, schools and programs of public health, health employers and government agencies. CPHAWE has defined "excellence" in the public health workforce to mean having sufficient numbers of workers, competent workers, workers that reflect the communities they serve, and workers that are capable of meeting the changing public health needs of California's increasingly diverse population. In light of all the factors identified above, CPHAWE has identified a need to focus primarily on workforce development for state, county, and local public health departments as well as public health professionals that work in community health centers and safety net. The CPHAWE Steering Committee worked with Jeff Oxendine, a Steering Committee Member, and Committee consultant, to develop the pathway and recommendations presented to the Committee. The Committee vetted and modified the pathway and recommendations and is proposing that those summarized below be approved by the Council.

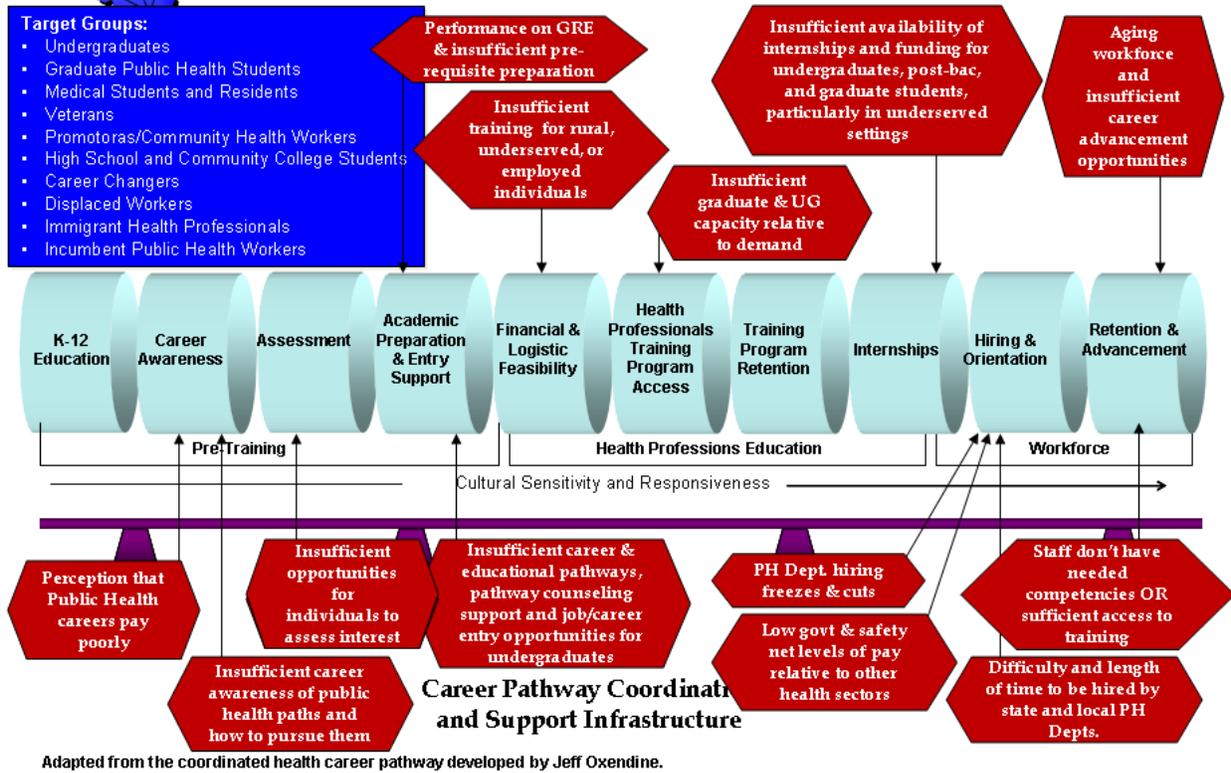
Pathway and Components

VISUAL DEPICTION

The pathway below represents the final system pathway developed for public health professionals in California. The barriers and recommendations developed are detailed in the following section.



Public Health Workforce System Pathway



BARRIERS AND RECOMMENDATIONS

In addition to the areas of focus identified through the pathway, additional priority areas of focus include:

- Assessing and enumerating the public health workforce;
- Determining current and emerging competencies and building these competencies into education and training programs;
- Increasing support for individuals pursuing public health career pathways; and,
- Supporting sufficient public health training and workforce development infrastructure and investment in California.

In particular, the barriers identified in the pathway model are addressed below, accompanied by recommendation(s) to address these barriers.

Table G-1. Public Health Professionals Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
<ul style="list-style-type: none"> • Insufficient awareness of public health careers and how to pursue; particularly among under-represented and underserved populations 	<ul style="list-style-type: none"> • Fund and provide infrastructure for CPHAWE to offer proven statewide outreach conferences and resources on public health careers and educational opportunities. Prioritize outreach and infrastructure support to disadvantaged, underrepresented and rural populations. • Increase public health internship opportunities for students at all levels
<ul style="list-style-type: none"> • Insufficient career and educational pathways, pathway counseling and job/career entry opportunities for undergraduates 	<ul style="list-style-type: none"> • Fund and provide infrastructure for CPHAWE to offer proven statewide outreach conferences and resources on public health careers and educational opportunities. Prioritize outreach and infrastructure support to disadvantaged, underrepresented and rural populations. • Support central career counseling and development infrastructure (like HPCOP, the Health Professions Career Opportunities Program). • Develop and promote clear education and career pathways for public health professionals starting at high school. • Increase and fund post-baccalaureate and post-graduate opportunities in health departments, clinics and other public health settings. • Support California State University (CSU) recommendations for health career courses and campus health career advising centers.
<ul style="list-style-type: none"> • Insufficient public health training program access, particularly for rural and underserved populations 	<ul style="list-style-type: none"> • Increase affordable access to undergraduate and graduate public health education and continuing education training through on-line programs, urban-rural partnerships and public health training centers. • In partnership with non-profit employers and funders, develop new certificate and degree programs in community benefit program implementation. • Pursue dual degrees with CSU.
<ul style="list-style-type: none"> • Insufficient paid internship opportunities for undergraduates, post-baccalaureate and MPH students; particularly in governmental agencies and underserved and rural communities 	<ul style="list-style-type: none"> • Increase funding and infrastructure for securing internship opportunities and provide sufficient stipend support for students. Work through proven existing programs and graduate education institutions. • Increase Federal funding for internships and expand CDC apprenticeships / fellowships in California. • Expand internship opportunities by leveraging other related disciplines with synergistic goals and roles (e.g., social work, public policy, business). • Promote public health and community organizations and faculty to include internships in grant applications.

Table G-1. Public Health Professionals Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
	<ul style="list-style-type: none"> Promote public health internships focused on population health in health plans.
<ul style="list-style-type: none"> Training and leadership development for California Department of Public Health (CDPH) staff to meet current needs and needs after expected retirements 	<ul style="list-style-type: none"> Maintain funding and support for CDPH Workforce and Leadership Development Efforts.
<ul style="list-style-type: none"> Assessment, enumeration and tracking of the public health workforce in California 	<ul style="list-style-type: none"> Support and invest in CPHAWC and Public Health Training Center efforts to assess and enumerate the public health workforce. Start by aggregating existing surveys. Quantify and project training program production relative to projected need. Ensure essential public health workforce data is collected, tracked and reported via OSHPD Health Care Workforce Clearinghouse or other tracking sources. Standardize job classifications to facilitate this.
<ul style="list-style-type: none"> Definition of current and emerging public health competencies 	<ul style="list-style-type: none"> Support and invest in CPHAWC efforts to define current and emerging competencies. Incorporate competencies required for working with emerging technologies and the information generated from those technologies, and place-based initiatives such as Building Healthy Communities.
<ul style="list-style-type: none"> Sufficient access to competency based training 	<ul style="list-style-type: none"> Invest in increasing the scale, sustainability and impact of California's public health training centers for in-person and on-line trainings. Develop innovative competency training in non-academic settings.
<ul style="list-style-type: none"> Insufficient infrastructure and investment to develop and lead public health workforce development in California 	<ul style="list-style-type: none"> Support and invest in CPHAWC staff and programs to lead the public health workforce efforts for California in partnership with CDPH, Schools, Associations and CHWA. Partner with advocates, such as the California State Rural Health Association (CSRHA), the California Primary Care Association (CPCA), and the California Rural Health Clinic Association, on how to address key legislative issues.
<ul style="list-style-type: none"> Cumbersome and lengthy government hiring processes (state and local) resulting in interested, qualified candidates taking jobs in other sectors 	<ul style="list-style-type: none"> Leverage hiring systems processes at the State level to streamline public health hiring. Explore other mechanisms to streamline hiring and communication. Partner with advocates, such as California State Rural Health Association (CSRHA), the California Primary Care Association (CPCA), and the California Rural Health Clinic Association, on how to address key legislative issues.
<ul style="list-style-type: none"> Insufficient awareness and support for 	<ul style="list-style-type: none"> Sustain and expand LabAspire Program.

Table G-1. Public Health Professionals Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
professionals pursuing public health laboratory careers	
<ul style="list-style-type: none"> Insufficient awareness and support for other specific public health career paths (e.g., environmental health, public health nursing) 	<ul style="list-style-type: none"> Develop specific plans for each priority shortage profession. Develop specific career ladders (High School through advancement) for each profession (such as the LabAspire program).

INDIVIDUAL PATHWAYS

The public health workforce works on an incredibly diverse array of areas, from health systems management to environmental assessments. This means there is an equally diverse range of individual pathways. However, programs such as the LabAspire program can help clarify the career path for individuals in a specific area of interest. This program, a collaboration of UC Davis, UC Berkeley, UCLA, CDPH, and the California Association of Public Health Laboratory Directors, is a unique outreach program to recruit a qualified public health laboratory workforce. This is of particular interest as California’s population grows alongside threats from contagious disease and bioterrorism. Given these threats, lab directors for public health labs will continue to be crucial to the safety of all Californians. LabAspire is at the forefront of an effort by California’s public health laboratories to actively recruit the next generation of qualified laboratory directors. This program has developed a career ladder for individuals in the workforce, with career advancement increasing as individuals move through the different levels. This career ladder is represented in the table below.

Table G-2. Sample Individual Pathway for Public Health Lab Directors

POSITION	NECESSARY EDUCATION AND EXPERIENCE
<ul style="list-style-type: none"> Laboratory Assistant, Technician 	<ul style="list-style-type: none"> High School Diploma or GED
<ul style="list-style-type: none"> Bench Microbiologist 	<ul style="list-style-type: none"> California Public Health Micro Certification Bachelor Degree
<ul style="list-style-type: none"> Supervisor Senior Microbiologist 	<ul style="list-style-type: none"> One year Public Health lab Experience California Public Health Micro Certification Bachelor Degree
<ul style="list-style-type: none"> Technical Supervisor 	<ul style="list-style-type: none"> Two years Supervisory Experience California Public Health Micro Certification Bachelor Degree
<ul style="list-style-type: none"> Assistant Public Health Lab Director 	<ul style="list-style-type: none"> Doctorate Board Eligible Two years Bench Lab Experience

Table G-2. Sample Individual Pathway for Public Health Lab Directors

POSITION	NECESSARY EDUCATION AND EXPERIENCE
	<ul style="list-style-type: none"> • California Public Health Micro Certification
<ul style="list-style-type: none"> • Public Health Lab Director 	<ul style="list-style-type: none"> • Doctorate Board Certification • Four years Lab experience, two years supervisory • California Public Health Micro Certification

EDUCATION AND TRAINING CAPACITY AND INFRASTRUCTURE

While this information is available for California, there was insufficient time during the project to summarize it. However, in 2007 a University of California Office of the President Council recommended a 180% increase in public health graduate education capacity in order to meet projected future needs. Given the California State Budget situation, investment in this increase has not been made.

ACADEMIC AND HEALTHCARE INDUSTRY SKILL STANDARDS

The National Council on Linkages has defined core competencies for public health. In addition, CPHAWE has an initiative looking at competency development for public health in California. An assessment tool is under development for launch in Fall 2011. They will then analyze data for additional competency development, to inform updated competencies that will be published in April 2012.

AVAILABILITY OF CAREER INFORMATION AND GUIDANCE COUNSELING

While career information and guidance resources are available through California Schools of Public Health, some undergraduate institutions and non-profits, there was insufficient time to summarize it during the project. A major challenge facing public health is that there is limited awareness of public health and how to pursue it among high school, college and other target groups. Additional resources are needed. There is a major opportunity as undergraduate majors and minors in public health are rapidly increasing on college campuses in California. The pathway recommendations will help increase the likelihood that more may choose and pursue public health.

PILOT/DEMONSTRATION PROJECTS

The pilot/demonstration projects identified by the Career Pathway Committee as priorities for the public health pathway are identified below.

Table G-3. Public Health Professionals Pilot/Demonstration Projects

DESCRIPTION OF PILOT/DEMONSTRATION PROJECT
<ul style="list-style-type: none">• Statewide public health paid internship programs in community health centers and public health departments for post-baccalaureate and post-MPH students to provide entry into the field and career development support.• Statewide project with Cal e-Connect to develop competencies and internships and career paths in emerging technologies such as EHR and HIE adoption, meaningful use, use of data, and policy.

Appendix H. Social Workers

Background Information

CURRENT SITUATION AND FUTURE NEED

Social workers practice in community and institutional settings ranging from physical health care facilities and mental health settings to schools. They reflect the populations served culturally and ethnically. In these venues social workers perform the following functions: Screening and assessment of clients/consumers (93%); information and referral services (91%); crisis intervention (89%); individual therapy (86%); and, health and mental health casework/planning (86%). Parentheses indicate percentage of social work activities in venues listed above.

California has a need for an estimated 22,000 social workers, factoring in expected growth in the insured health population due to the PPACA. This need is projected through 2015. Specifically, 17,000 are needed in urban areas throughout the state and 5,000 are needed in rural areas (regarding rural areas, see Superior Regional Workforce Education and Training Study). According to the National Association of Social Workers and Federal Labor Board, there are approximately 60,000 social workers in California out of a needed 82,000. Unfortunately 20 to 25% of these workers call themselves social workers, but have neither a BSW nor MSW.

California's social worker shortage crosses all service areas, including: child welfare, mental health, physical health, developmental disabilities, aging, and adult protective services. Specifically, social workers work and are needed in these areas in these proportions: 37% mental health, 20% health, 15% children and family public services, 10% aging, and 18% other (BBS and NASW).

Social workers practice as part of health care teams, and are specifically trained to address the psychosocial implications of acute and chronic illnesses. They practice across the continuum of care including community and public health clinics, hospitals, nursing homes, home health care, primary care, prisons, veteran service networks, and hospices (Asua Ofosu, JD, Manager, Government Relations National Association of Social Workers). The new health care law requires health plan benefits to include mandatory mental health, substance use, and preventive services. Many times social workers are often the only providers delivering these services in rural and underserved areas (Asua Ofosu). In fact, the Patient Protection and Affordable Care Act provides the opportunity for a radical shift in the way patients and their families are cared for. It recognizes that the *patient* should be at the center of medical care. Meeting this challenge requires improved coordination of care over time and across multiple settings provided by

professionally educated social workers (Robyn L. Golden, LCSW, Rush University Medical Center).

Pilot studies done in community based health care settings, the VNA home hospice, and Kaiser's Tri-Central Region demonstrated that social workers on inter-disciplinary teams were effective in reducing hospital admissions and emergency room visits (Cherin, 1998; Enguidanos, 2003). In these studies as in social work practice, social workers perform using a focus on person-in-environment/ecological perspective with regard to psychosocial assessments, diagnosis, interventions and outcomes evaluation. Practice in these cases leads to development of patient advocacy in the form of policy practice among care teams and within systems. Social workers in direct service meet with patients develop a psychosocial assessment, develop plans of action for given circumstances, represent patients/clients/consumers with the care team, provide onsite visits and connect clients with services, (discharge planning), and provide team coordination and training both for teams and clients/consumers/patients.

Some of the primary areas in which social workers are critical include mental health, aging, and substance abuse. Mental health and substance abuse social worker professionals represent the largest sector of these types of providers in California's mental health workforce with an estimated current employment of 14,010. In the next several years demand for social workers in this arena is expected to increase by 35.4% (Center for the Health Professionals, University of California, San Francisco, 2009). As defined by HRSA, social workers will represent a critical force working on behavioral health in the affordable care act, working with consumers on mental health issues as well as the broader aspects of lifestyle and management of chronic illness (HRSA email on PPACA and Social Work, 2011). In fact, California's community-based, public mental health resources groups indicated in surveys that positions that were the hardest to fill or retain by order of difficulty and need were first, general psychiatrists, and second, licensed clinical social workers (LCSW) (California Department of Mental Health, 2009). In particular, the Bureau of Labor Statistics in 2008 found that the median average salary for health and mental health social workers was approximately \$46,000, and projected growth in new positions in these areas alone would be 34% between 2008 and 2018.

The PPACA will have a major impact on California's health workforce needs because it will substantially increase the number of Californians with health insurance. In particular, as many as up to 3 million Californians will be newly eligible for Medi-Cal, the state's Medicaid program (Cabezas and Laverreda). This Medi-Cal population is currently served in county social service and mental health systems throughout California by trained social workers. Social workers will

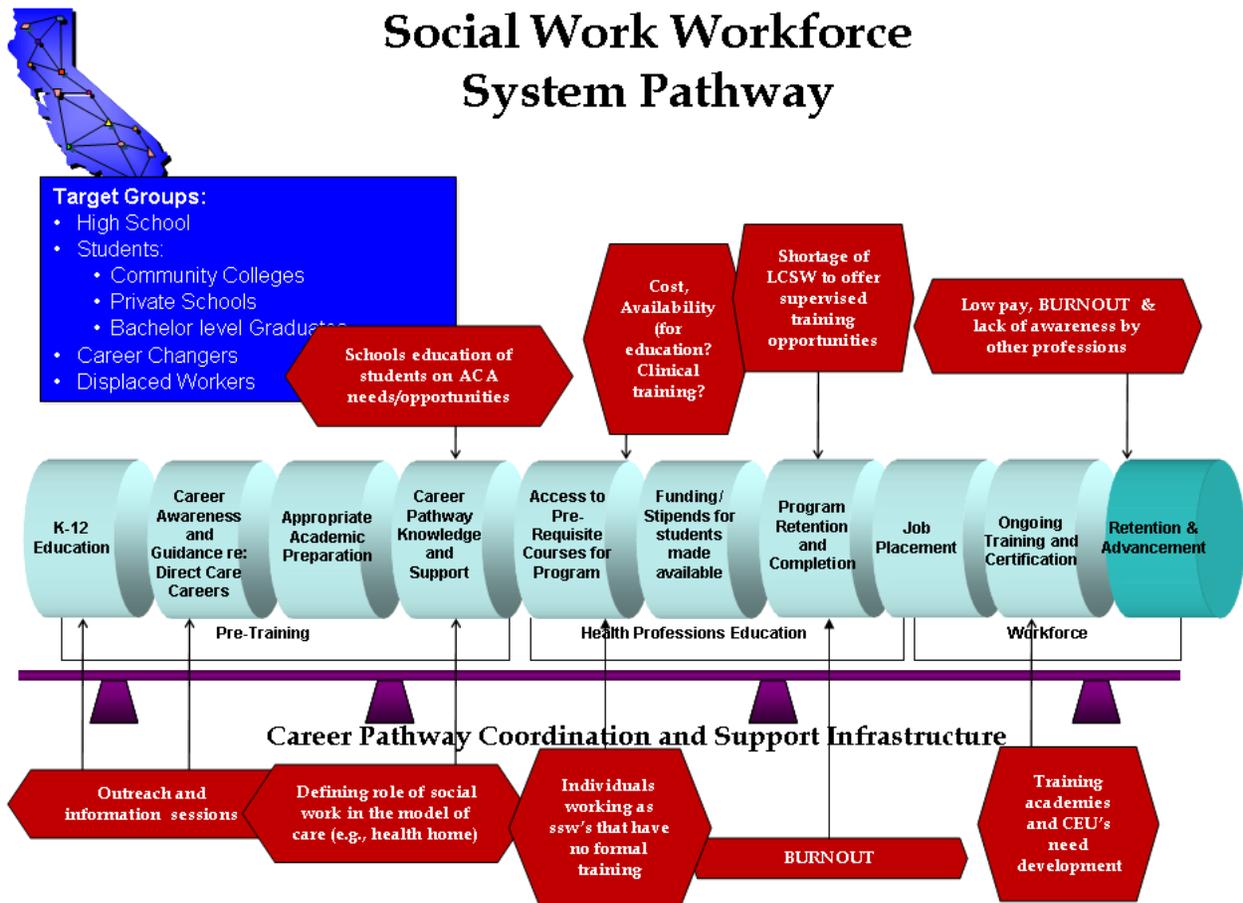
continue to provide an array of services to this population as well as a growing number of senior citizens. In sum, this will require additional social workers in these public venues.

Dr. David Cherin and the California Social Work Education Center (CalSWEC) developed the pathway and recommendations for the Committee. Below are the Committee's recommendations to the Council for Social Work.

Pathway and Components

VISUAL DEPICTION

The pathway below represents the final system pathway developed for social workers in California. The barriers and recommendations developed are detailed in the following section.



Adapted from the coordinated health career pathway developed by Jeff Oxendine.

BARRIERS AND RECOMMENDATIONS

The barriers identified in the pathway model are addressed below, accompanied by recommendation(s) to address these barriers.

Table H-1. Social Workers Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
<ul style="list-style-type: none"> Outreach to Target Groups needs to be improved 	<ul style="list-style-type: none"> Marketing and ongoing information sessions need to be developed at Schools and Departments of Social Work with local high schools and community colleges and out of state institutions. This can be accomplished through use of CalSWEC’s infrastructure and articulation committee designed to meet needs of students moving between high school, community colleges and four year colleges. Develop a better articulated career pathway from high school through the MSW degree working with Secondary educational experts and CalSWEC, using concepts such as a service learning model and certificate requirements.
<ul style="list-style-type: none"> Programs in social work need to create awareness on the part of incoming students of PPACA and opportunities. Without placements and stipends interested students will not have incentives to pursue careers 	<ul style="list-style-type: none"> Develop placements related to PPACA through California Fieldwork consortiums and training academies. Develop stipend programs through CalSWEC infrastructure to model mental health and child welfare funding streams. Possibly expand the use of Title-IV-E and Mental Health Service Act. Advertise social work as a job avenue for recent college graduates from other disciplines entering the work world.
<ul style="list-style-type: none"> Establish role of social work among health professionals to convey value of social work 	<ul style="list-style-type: none"> Continue evidenced based pilot studies of social work in health teams that validate effectiveness, e.g., Kaiser Tri-Central Study and VNA/HRSA study. Continue to define role of the social worker in health teams, including complementary role with other team members such as substance abuse counselors. Use CalSWEC infrastructure to fund statewide research initiatives and coordinate overall recommendations. Work with State and Board of Behavioral Sciences to support social work title protection so that skills levels and education that are required for offering social work services are clearly identified and protected. This will provide stronger incentives to enter the field and enhance recruitment. Explore a requirement for formalized training for individuals working in social work capacity that have no formal social work education.
<ul style="list-style-type: none"> Retention of students and professionals in practice (e.g., 	<ul style="list-style-type: none"> CalSWEC funded studies and curriculum have identified factors causing burnout. Workload continues to be the major

Table H-1. Social Workers Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
overwhelmed by heavy caseload, lack of clear career pathway)	<p>problem. Increasing the number of social workers will alleviate some of the problem. Reconfiguring delivery through community teams as delineated in Superior Northern California Study.</p> <ul style="list-style-type: none"> • Use distance education to upgrade skills of existing staffs, especially in rural areas, to develop newly educated social workers that are trained and upgraded in place • Examine whether compensation is a barrier for practitioners.
<ul style="list-style-type: none"> • In order to maintain currency CEU courses related to PPACA will have to be developed 	<ul style="list-style-type: none"> • CalSWEC has regional training academies to develop ongoing education and delivery mechanisms. • Schools of Social Work will have to incent faculty to develop ongoing training material and deliver same through CEU certifications that belong to each school.
<ul style="list-style-type: none"> • Shortage of LCSW to offer supervised training opportunities 	<ul style="list-style-type: none"> • Address shortage by increasing training opportunities. • Explore other ways to meet need for supervision in training programs (e.g., other methodologies for supervision such as tele-supervision).

INDIVIDUAL PATHWAYS

In their 2004 Master Plan, the Deans and Directors of Social Work programs in California created a ladder of learning delineating individuals’ social work career pathway.

Table H-2. Social Work Ladder of Learning

LADDER LEVEL	DESCRIPTION	CURRENT GRADUATES PRODUCED	FUTURE GRADUATES NEEDED	WORK SKILL SETS GRADUATE WILL HAVE	JOB CLASSIFICATIONS
1	<ul style="list-style-type: none"> • High School Certificate 	<ul style="list-style-type: none"> • Unknown (survey needed) 	<ul style="list-style-type: none"> • Need to do workforce study and analysis 	<ul style="list-style-type: none"> • Interactive skills, introductory knowledge of theory and practice 	<ul style="list-style-type: none"> • Apprentice Social Worker
2	<ul style="list-style-type: none"> • AA degree 	<ul style="list-style-type: none"> • Unknown (survey needed) 	<ul style="list-style-type: none"> • Need to do workforce study and analysis 	<ul style="list-style-type: none"> • Introductory intervention skills, some basic assessment. 	<ul style="list-style-type: none"> • Assistant Social Worker
3 (optional)	<ul style="list-style-type: none"> • Certificate 	<ul style="list-style-type: none"> • Not yet fully 	<ul style="list-style-type: none"> • Need to do 	<ul style="list-style-type: none"> • As above, plus 	<ul style="list-style-type: none"> • Trainee

Table H-2. Social Work Ladder of Learning

LADDER LEVEL	DESCRIPTION	CURRENT GRADUATES PRODUCED	FUTURE GRADUATES NEEDED	WORK SKILL SETS GRADUATE WILL HAVE	JOB CLASSIFICATIONS
		developed	workforce study and analysis	knowledge of service delivery systems and community assets and services	Social Worker
4	<ul style="list-style-type: none"> BSW 	<ul style="list-style-type: none"> 300 per year 	<ul style="list-style-type: none"> Need 18,700 combined MSW and BSW 	<ul style="list-style-type: none"> Casework, community assessment and knowledge of policy 	<ul style="list-style-type: none"> Social Worker One
5 (optional)	<ul style="list-style-type: none"> Certificate 	<ul style="list-style-type: none"> Not yet fully developed 	<ul style="list-style-type: none"> Need to do workforce study and analysis 	<ul style="list-style-type: none"> Advanced case management and community intervention skills 	<ul style="list-style-type: none"> Social Worker Two
6	<ul style="list-style-type: none"> MSW 	<ul style="list-style-type: none"> 1,200 per year 	<ul style="list-style-type: none"> Need 18,700 combined MSW and BSW 	<ul style="list-style-type: none"> Sophisticated individual and group skills as well as casework expertise, supervisory and leadership skills, ability to evaluate practice and understand research 	<ul style="list-style-type: none"> Social Worker Three
7a Practice	<ul style="list-style-type: none"> Various Licenses 	<ul style="list-style-type: none"> At present only one kind of license: a clinical license. Currently 300 per year pass oral exam. 	<ul style="list-style-type: none"> Need to do workforce study and analysis 	<ul style="list-style-type: none"> As above but specialized 	<ul style="list-style-type: none"> Licensed Social Worker
7b Education and Research	<ul style="list-style-type: none"> Doctorate 	<ul style="list-style-type: none"> 30 per year? 	<ul style="list-style-type: none"> Need to do workforce 	<ul style="list-style-type: none"> Practice, research and 	<ul style="list-style-type: none"> Social Work Educator and

Table H-2. Social Work Ladder of Learning

LADDER LEVEL	DESCRIPTION	CURRENT GRADUATES PRODUCED	FUTURE GRADUATES NEEDED	WORK SKILL SETS GRADUATE WILL HAVE	JOB CLASSIFICATIONS
			study and analysis	teaching skills	Researcher

Ladder of Learning. Source: California Association of Deans and Directors of Schools of Social Work and the California Social Work Education Center (CalSWEC), 2004).

In addition the detailed provided in the above ladder of learning, Committee members recommended further refining the ladder to more clearly specify specific titles, compensation, core prerequisites, and licensure requirements at each level.

EDUCATION AND TRAINING CAPACITY AND INFRASTRUCTURE

California has 25 social work programs in schools/departments across the state. These programs currently graduate approximately 5,500 students annually. In terms of ethnic statistics on these students, the graduates fall within the following categories (CADD, 2003; validated 2011):

- African American/Other Black, Non-Hispanic (10%);
- Native American/Alaskan/American Indian (1%);
- Asian American (10%);
- Latino/Hispanic (32%);
- Pacific Islander (1%);
- White/Non Hispanic Caucasian (36%);
- Multiple Race/Ethnic (0.1%);
- Other (5%); and,
- Unknown (6%).

ACADEMIC AND HEALTHCARE INDUSTRY SKILL STANDARDS

Over the past 18 months, CalSWEC and the Deans and Directors of Social Work programs in California have developed a set of competencies that frame both the foundation and advanced years of a social work education in California. These competencies are aligned with the accrediting group’s Educational Policy and Accreditation Standards (EPAS) guidelines and delineate the Knowledge, Skills and Attitudes which are explicitly a part of the social work curriculum and frame social work practice. These competencies link social work program goals to measurable program objectives. Through CalSWEC’s infrastructure, these competencies are being implemented in all member schools and departments of social work in California.

Competencies in foundation social work education and advanced practice in aging, child welfare and mental health were provided to Committee members as sample competency documents. The Committee recommended further refining these by incorporating linguistic competencies.

AVAILABILITY OF CAREER INFORMATION AND GUIDANCE COUNSELING

Career information and guidance counseling is available in California from many sources. However, given the limited time of this project it was not summarized.

ADDITIONAL RESOURCES

Additional information can be found in the following resources. These resources were provided to the Committee.

- California Association of Deans and Directors of Schools of Social Work and the California Social Work Education Center (CalSWEC). Master Plan for Social Work Education in the State of California (July 2004).
- Integrated Foundation and Advanced Competencies Draft for Social Work: Mental Health (March 2011).
- Integrated Foundation and Advanced Competencies Draft for Social Work: Child Welfare (March 2011).
- Integrated Foundation and Advanced Competencies Draft for Social Work: Aging (April 2011).
- California Social Work Education Center (CalSWEC). Competency Integration and Revision Project Summary (April 2011).
- Elizabeth J. Clark, National Association of Social Workers. Letter to Donald Berwick re: Proposed Rule on Medicare Shared Savings Program and Accountable Care Organizations; CMS-1345-P (June 6, 2011).
- Pamela Brown, Donna Jensen, Tene Kremling, and Meredith Ray. Distance Education Feasibility Study (October 2009). Funded by Superior Region Workforce, Education and Training Collaborative.

Appendix I. Alcohol and Other Drug Abuse Counselors

After review of the alcohol and other drug abuse counselors (AODA) Pathway and extensive discussion with Sherry Daley of the California Association of Alcoholism and Drug Abuse Counselors, the Committee decided the following:

1. That healthcare reform and other health and economic trends in California will likely result in an increased demand for education, prevention, counseling and treatment related to alcohol and other drugs. Healthcare reform includes provisions that increase coverage for certain AODA-related conditions and services, which will increase demand for services and the workforce to provide them.

2. Alcohol and other drug abuse counselors play an important role, along with other health and mental and behavioral professionals, in the provision of AODA services. However, at this point in the development, definition and licensure of AODA professionals and training programs, the Committee recommends further and more extensive work be done on refinement of the AODA pathway and recommendations prior to action by the Council. In particular, the Sub Committee recommends that a small task force made up representatives from AODA counselors, social workers, other providers of mental and behavioral health, relevant education and government agency leaders and workforce researchers and development experts should be part of the task force.

In light of this overarching recommendation, an abbreviated version of the pathway is presented below.

Background Information

CURRENT SITUATION AND FUTURE NEED

AODA services are provided by certified counselors, therapists licensed by non-AODA boards, nurses, and physicians in a variety of modalities. Because there is no defined AODA profession in California, accurate statistics concerning the workforce are limited. The substance abuse treatment workforce is undefined, lacks clear parameters and cuts across multiple licensed, certified and unclassified professions. In fact, the Department of Alcohol and Drug Programs estimates that less than 30,000 persons are registered or certified as alcoholism and drug abuse counselors (Daley, 2011). There are severe shortages of AODA counselors statewide and in many geographic locations. There are an estimated 3.5 million persons with diagnosable substance use disorders in California (Substance Abuse & Mental Health Services Administration, 2009).

The substance abuse sector faces critical workforce issues, which center on the lack of clear educational and career pathways for workers. This hampers recruitment and contributes to turnover, as many skilled workers leave the sector in the search of upward career mobility. In addition, there is a 50% turnover rate in frontline staff and directors yearly (McLellan et al, 2003; Substance Abuse & Mental Health Services Administration, 2007). However, AODA counseling is a single diagnosis specialty. Career preparation can be impacted almost immediately. Barriers are easily identified and practical means to overcome them are available. Quality and quantity can be improved greatly in a relatively short time period.

There are nine certifying bodies and multiple licensing boards that confer some type of credential in the field. Education, training and testing requirements vary tremendously.

Consumers, employers and potential professionals lack adequate means to distinguish competency when making decisions regarding patient care, employability or career development, and members of the health care delivery system are frequently unaware of how to assess, refer or evaluate AODA treatment options. The benefit is not currently aligned to California's health care provider network.

AODA counseling is ranked in the top five for clinically preventable burdens and return on investment in health care spending (Kaiser Permanente, 2010). The level of health care services used by addicts before receiving treatment is more than double of non-addicts (Kaiser Permanente, 2010). Twelve months past intake, levels of service return to almost average for addicts.

California employs significantly fewer AODA counselors per population than the national average (California 2.01 per 100,000 population, United States 2.2 per 100,000 population) (UCLA Integrated Substance Abuse Programs, 2005). Only 1 person in 10 persons who has a drug use disorder and 1 person in 20 who has an alcohol use disorder receive treatment for the condition (Substance Abuse & Mental Health Services Administration, 2007). The workforce implications of these statistics are significant.

In terms of the workforce, there are several challenges:

- Age: Average age of the AODA counselor is 48 (Department of Health and Human Services Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Treatment, 2003).
- Diversity: Studies show that 70-90% of AODA counselors are Caucasian (Department of Health and Human Services Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Treatment, 2003). Among new entrants to the field, 70% are female (Department of Health and Human Services Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Treatment, 2003).
- Populations: There are severe shortages for the treatment of children, youth and the elderly (Department of Health and Human Services Substance Abuse and Mental Health Services Administration, Addictions Treatment Workforce Development).
- Demand increases: Implementation of the Affordable Care Act will greatly increase the need for AODA counselors.
- Supply decreases: Due to budget reductions, facilities funded by Medicaid and via Proposition 36 (treatment alternative to incarceration) are closing at an alarming rate. Professionals at all levels are exiting the workforce at this time.

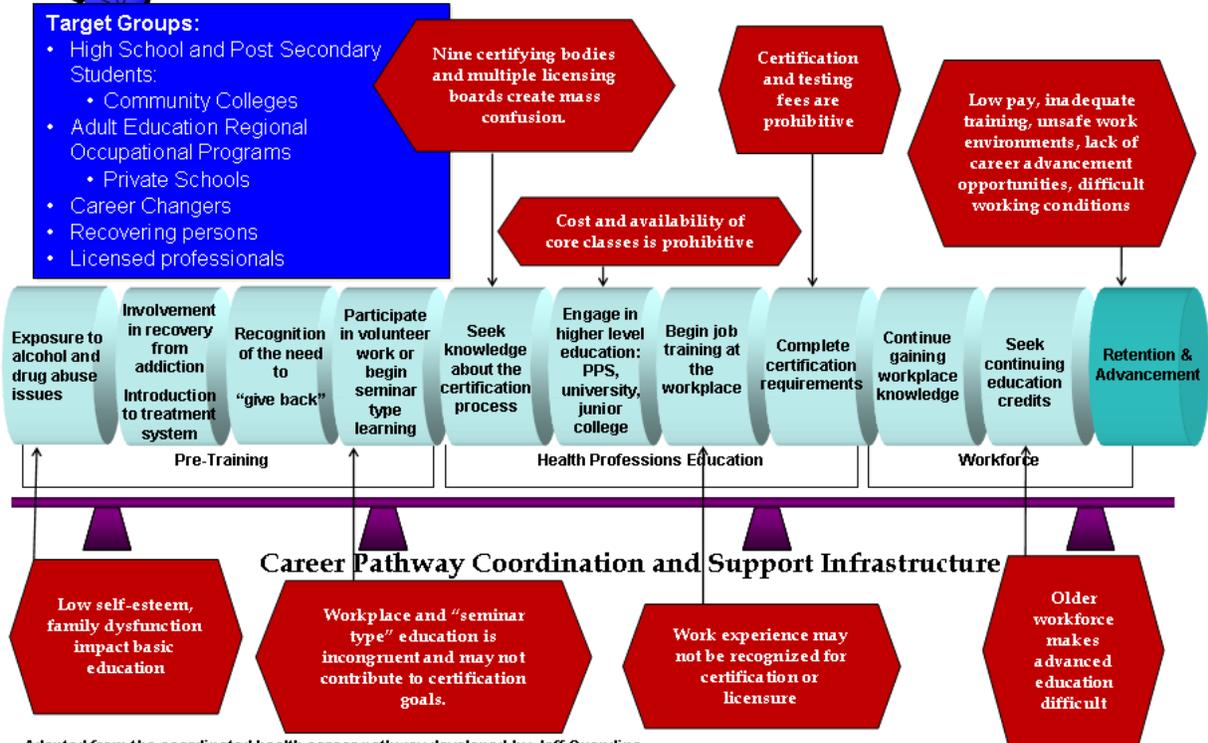
Pathway and Components

VISUAL DEPICTION

The pathway below represents the final system pathway developed for AODA professionals in California. The barriers and recommendations developed are detailed in the following section.



Alcohol and Other Drug Abuse Counselor Workforce System Pathway



Adapted from the coordinated health career pathway developed by Jeff Oxendine.

BARRIERS AND RECOMMENDATIONS

Several detailed barriers and recommendations were identified. However, while the Committee agreed that this was a very important profession to California and that PPACA Implementation may increase the role and need, the Committee chose to not act on them based on a consensus that significant additional analysis was required prior to the recommendations being ready for decision-making. Instead, given that it is an emerging profession in terms of its role, standards, accreditation and other factors, the Committee recommended that a comprehensive analysis of the AODA counselor pathway be conducted in conjunction with other related professions.

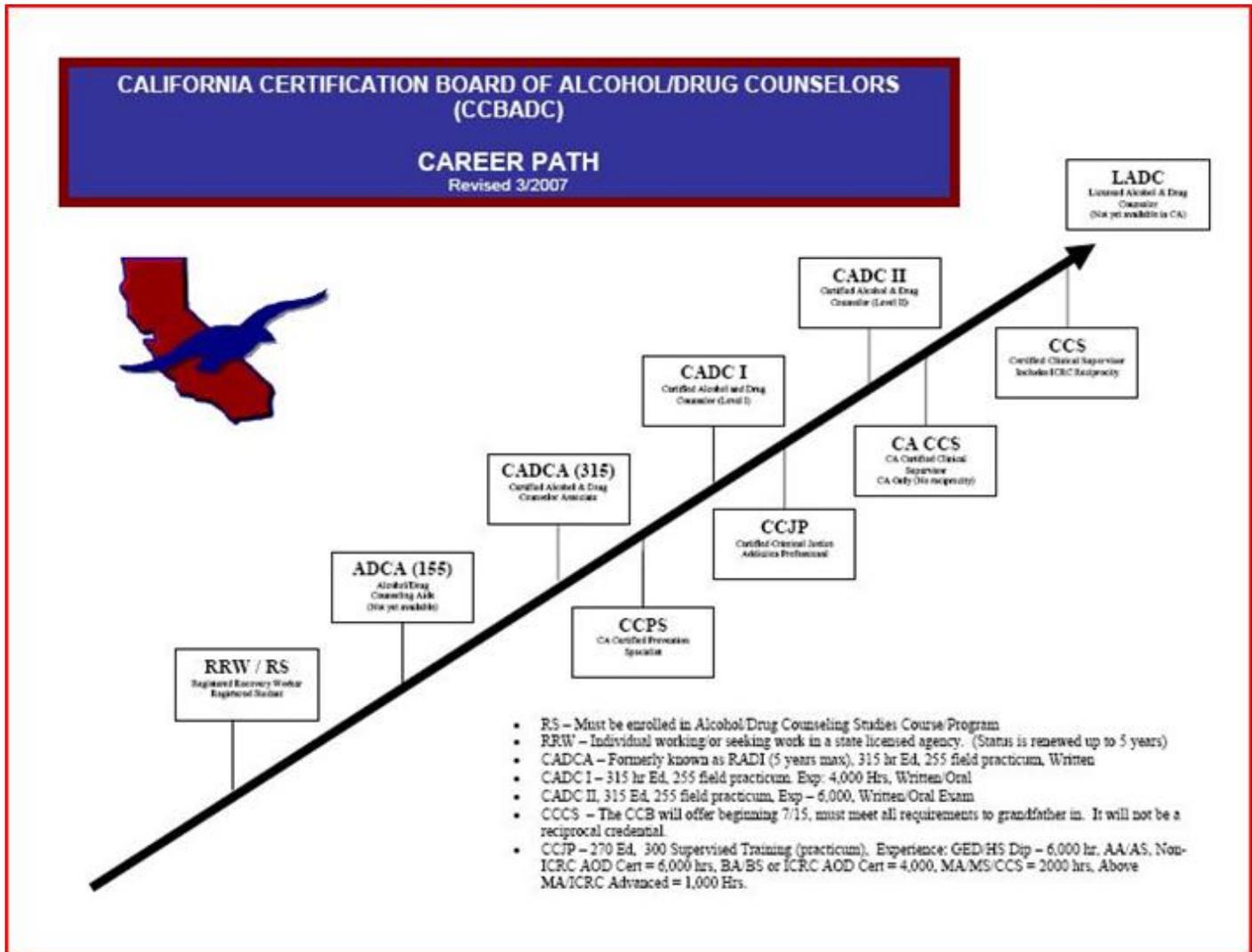
INDIVIDUAL PATHWAYS

Individual pathways may involve the following roles:

- Registered recovery worker/Registered student

- AODA intern
- Certified alcoholism and drug abuse counselor I
- Certified alcoholism and drug abuse counselor II
- Clinical supervisor
- Licensed AODA counselor

A typical AODA counselor career path is represented below.



EDUCATION AND TRAINING CAPACITY AND INFRASTRUCTURE

Several community colleges have offered certificate programs in the past. Their current intentions or capacity is unknown at this time. Several postsecondary schools currently offer

certificate programs, however their current and future capacity is not currently documented. Given this, there is a need to evaluate capacity and potential capacity for AODA education.

ACADEMIC AND HEALTHCARE INDUSTRY SKILL STANDARDS

AODA counselors in California are required to have the following skills and experiences:

- 315 hours of approved alcohol and drug formal education
- Supervised Practicum, including classroom participation (45 hours) and completion of 255 hours at an approved agency
- Pass ICRC (International Certification & Reciprocity Consortium) written examination
- Signed Code of Ethics and Scope of Practice
- 2,000 to 10,000 hours of experience depending on level of certification/licensure

PILOT/DEMONSTRATION PROJECTS

The pilot/demonstration projects reviewed by the Career Pathway Committee for the AODA counselor pathway are identified below.

Table I-1. Alcohol and Other Drug Abuse Counselors Pilot/Demonstration Projects

DESCRIPTION OF PILOT/DEMONSTRATION PROJECT
<ul style="list-style-type: none">• Evaluate capacity for short and long term to determine where shortages exist and prepare• Need for demonstration project in severity/treatment efficacy• Need for education consortium project• Need for retention and recruitment project• Need for healthcare workforce AODA education demonstration project

Appendix J. Pathways for Future Consideration: Direct Care

Two additional pathways, direct care and physician assistants, were also developed for the Committee to consider after the rest of the pathways had been finalized. Given the intensive review process necessary for the above eight pathways, the Committee was not able to review these two additional pathways. However, they are prepared and ready for Committee, Council or a successor process review if desired in the future. The direct care pathway is described briefly below.

Background Information

CURRENT SITUATION AND FUTURE NEED

The direct care workforce is primarily made up of three roles: Certified Nursing Assistants (CNAs), Home Health Aids (HHAs), and Personal Care Assistants (PCAs). These roles are described in the table below.

Table J-1. Direct Care Roles, Employers, and Services Provided/Skills Required

ROLE	EMPLOYED BY	SERVICES PROVIDED / SKILLS REQUIRED
<ul style="list-style-type: none"> • Certified Nursing Assistants (CNAs) 	<ul style="list-style-type: none"> • Nursing facilities • Hospitals • Clinics 	<ul style="list-style-type: none"> • Patient safety and emergency procedures • Patient rights • Infection control • Body mechanics • Elder abuse prevention • Communication and interpersonal skills
<ul style="list-style-type: none"> • Home Health Aides (HHAs) 	<ul style="list-style-type: none"> • Home health agencies • Health or welfare agencies • Hospitals 	<ul style="list-style-type: none"> • Personal care services (bathing, toileting, ambulation, monitoring health conditions) • Meal planning • Laundry • Light housekeeping
<ul style="list-style-type: none"> • Personal Care Aides (PCAs) 	<ul style="list-style-type: none"> • Work in private or group homes * <i>Often seen as an alternative to assisted living or nursing facilities</i> 	<ul style="list-style-type: none"> • Daily living (bathing, dressing, etc.) • Household chores • Meal preparation • Medication management • Paramedical services

Direct care workers are primarily women of color with a high school education, with an average age of 44 years. Approximately half are foreign born. Personal Care Assistants make up the majority of the direct care workforce, with 376,000 individuals employed as In-Home Supportive Services workers in 2009. Certified Nursing Assistants make up 21% of the direct care workforce,

and Home Health Aides make up 11% of the workforce. The median annual earnings for the workforce are \$16,000, with PCAS earning the lowest average wage of \$12,766.

The aging population in California will increase demand for the direct care workforce. From 2010 to 2030, the number of adults 65 years or older is expected to increase 100%, from 4.41 million individuals in 2010 to 8.84 million in 2030. In the same time period, the number of adults 85 years or older is expected to increase 72%, from 628,000 individuals in 2010 to 1.08 million in 2030.

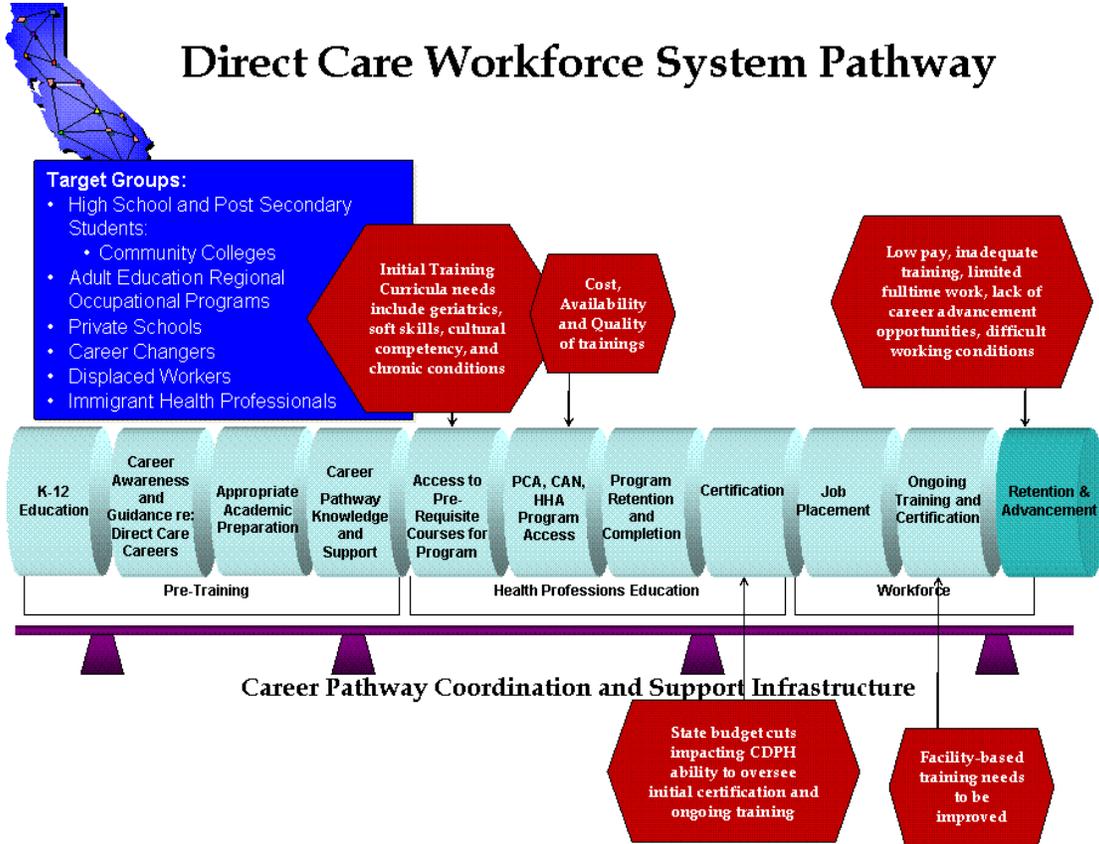
Based on need, PCAs and HHAs have been identified as the 3rd and 4th fastest-growing occupations in California, at 45.7% and 43.6%, respectively. It is expected that more than 200,000 PCA jobs will be created in California from 2008 to 2018. However, population attrition for the primary labor pool (women aged 25-54 years) will lead to recruitment and attrition issues.

Source: Preparing for the Needs of an Aging California: Building and Supporting California's Direct Care Workforce (SCAN Foundation).

Pathway and Components

VISUAL DEPICTION

The pathway below represents the final system pathway developed for direct care professionals in California. The barriers and recommendations developed are detailed in the following section.



Adapted from the coordinated health career pathway developed by Jeff Oxendine.

BARRIERS AND RECOMMENDATIONS

The barriers identified in the pathway model are addressed below, accompanied by recommendation(s) to address these barriers.

Table J-2. Direct Care Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
<ul style="list-style-type: none"> Initial training curricula needs include geriatrics, soft skills, cultural competency, and chronic conditions 	<ul style="list-style-type: none"> Improve in-service/continuing education curricula in the areas of geriatric core competencies, cultural competency, soft skills development, and culture change.
<ul style="list-style-type: none"> Cost, availability, and quality of trainings 	<ul style="list-style-type: none"> Expand opportunities for initial training.
<ul style="list-style-type: none"> Low pay, inadequate training, limited fulltime work, lack of career advancement opportunities, difficult working conditions 	<ul style="list-style-type: none"> Increase direct care worker wages and opportunities for fulltime work. Develop accessible well-designed career ladders and lattices with opportunities for professional development for CNAs and HHAs.

Table J-2. Direct Care Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
	<ul style="list-style-type: none"> Promote awareness of the diversity of direct care workers and care recipients.
<ul style="list-style-type: none"> State budget cuts impacting CDPH ability to oversee initial certification and ongoing trainings 	<ul style="list-style-type: none"> Promote and facilitate local and statewide collaboration and coordination regarding recruitment, training, and retention. Convene the Council, representatives from state level agencies, and statewide health workforce associations, coalitions, provider organizations, and educational institutions to address strategies focused on direct care workforce needs.
<ul style="list-style-type: none"> Facility-based training needs to be improved 	<ul style="list-style-type: none"> Support enhanced skills training for in-service/continuing education providers.
<ul style="list-style-type: none"> Rigid credentialing and certification process 	<ul style="list-style-type: none"> Assess California’s current credentialing and certification process – explore opportunities to create more flexible and responsive requirements.

ACADEMIC AND HEALTHCARE INDUSTRY SKILL STANDARDS

Table J-3. Direct Care Roles, Certification Requirements, and Continuing Education Requirements

ROLE	CERTIFICATION REQUIREMENTS	CONTINUING EDUCATION REQUIREMENTS
<ul style="list-style-type: none"> Personal Care Aides (PCAs) 	<ul style="list-style-type: none"> Fingerprinting and criminal background check; no other certification requirements 	<ul style="list-style-type: none"> None
<ul style="list-style-type: none"> Certified Nursing Assistants (CNAs) 	<ul style="list-style-type: none"> 60 hours of classroom training 100 hours of supervised clinical training in fundamentals of patient care 	<ul style="list-style-type: none"> 48 hours of in-service/continuing education units every two years (up to 12 hours online courses per year)
<ul style="list-style-type: none"> Home Health Aides (HHAs) 	<ul style="list-style-type: none"> 75 hours of basic training, including classroom and clinical training 	<ul style="list-style-type: none"> 12 hours of in-service/continuing education annually

PILOT/DEMONSTRATION PROJECTS

The pilot/demonstration projects identified as priorities for the direct care pathway are identified below.

Table J-4. Direct Care Pilot/Demonstration Projects

DESCRIPTION OF PILOT/DEMONSTRATION PROJECT
<ul style="list-style-type: none"> Development of core competencies, pilot training curricula, and certification programs for personal and home care aides (seven California partners, through Personal and Home Care Aide State Training Program (PHCAST) grants.

Appendix K. Pathways for Future Consideration: Physician Assistants

Similar to the direct care pathway described above, a pathway for physician assistants was also developed for the Committee to consider after the rest of the pathways had been finalized. Given the intensive review process necessary for the eight pathways considered, the Committee was not able to review this additional pathway. However, the pathway is prepared and ready for Committee, Council or a successor process review if desired in the future, and described briefly below.

Background Information

CURRENT SITUATION AND FUTURE NEED

According to the American College of Physicians (2010), primary care physician assistants (PAs) deliver high-quality, cost-effective primary care services as part of a physician led team. They must graduate from an accredited PA program, where they are trained to provide diagnostic, therapeutic and preventive care as delegated by a physician. They function as primary care providers in the patient-centered medical home as part of a multidisciplinary clinical team led by a physician.

Currently there are nearly 8,000 PAs practicing in California. 37.2% practice in primary care¹ (defined as family/general medicine, general internal medicine and general pediatrics; 2009 AAPA Physician Assistant Census Report for Pacific Census Division). PA programs in California graduate approximately 420 students per year, and the role was named one of the Best Master's Degrees for Jobs (Forbes Magazine May 2010) and ranked second for Best Jobs (CNN Money/Money Magazine 2010).

New demand for additional PAs in California by 2020 is expected to be between 6,169 and 7,721, an increase of 77% - 96%. In addition, new demand for additional PAs in California by 2030 is expected to be between 14,122 and 17,656 (Fenton Communications, Will California Miss Out On Billion Dollar Growth Industry (2010) Table B.6 *New Demand By Occupation*, Funded by California Wellness Foundation).

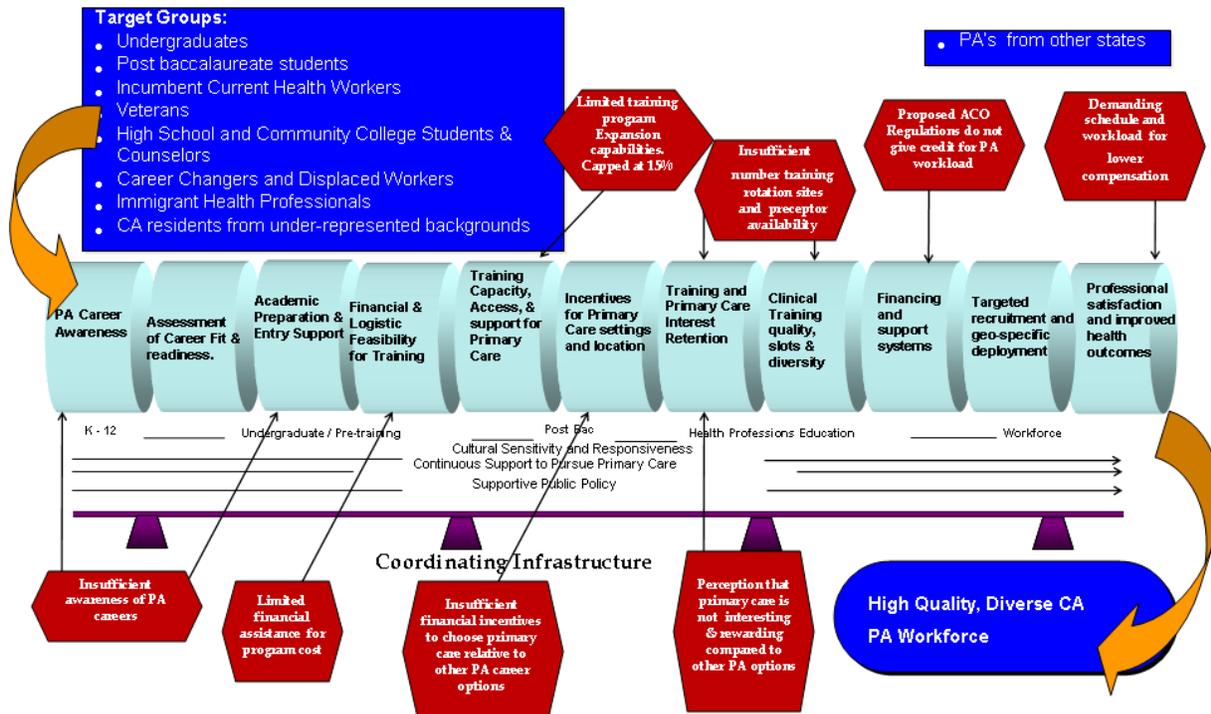
The workforce draws extensively on existing health workforce members, medics returning from military service, and adults changing careers or returning to the workforce.

Pathway and Components

VISUAL DEPICTION

The pathway below represents the final system pathway developed for physician assistants in California. The barriers and recommendations developed are detailed in the following section.

Physician Assistant Workforce System Pathway



Adapted from the coordinated health career pathway developed by Jeff Oxendine.

BARRIERS AND RECOMMENDATIONS

The barriers identified in the pathway model are addressed below, accompanied by recommendation(s) to address these barriers.

Table K-1. Physician Assistants Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
<ul style="list-style-type: none"> • Limited financial assistance in the form of scholarships, grants and other forms of tuition reduction 	<ul style="list-style-type: none"> • Create state and federal scholarships and grants specific to PA students • Create financial incentives in the form of

Table K-1. Physician Assistants Pathway Barriers and Recommendations

BARRIER	RECOMMENDATION
	tuition reduction programs specific to those PA students that demonstrate an interest in Primary Care <ul style="list-style-type: none"> • Create loan reduction/forgiveness programs for those that choose to practice in Primary Care
<ul style="list-style-type: none"> • Limited expansion opportunities within existing programs due to insufficient number of rotation sites, preceptor availability, 15% cap on class size expansion, and in some site space restrictions 	<ul style="list-style-type: none"> • Work with OSHPD to identify additional residency opportunities in Teaching Health Centers, School-based clinics, Community clinics, etc. • Incentivize precepting by seeking regulatory changes that would allow health care providers that provide clinical education to receive Category 1 CME credit for precepting PA students • Provide financial assistance to existing programs to increase faculty and infrastructure needs (could include satellite learning centers)
<ul style="list-style-type: none"> • Fewer PAs choose to enter the primary care profession due to lower salary and a perceived notion that primary care is not exciting 	<ul style="list-style-type: none"> • Create incentives specific to primary care similar to the Assumption Program of Loans for Educators (APLE) used to entice educators to teach in under performing areas, housing incentives, lower interest loans, childcare assistance incentives, etc. • Develop a strategic marketing plan highlighting the benefits of choosing a primary care profession

Additional big picture issues to consider include the fact that PAs have the ability to greatly assist in the shortage of health care practitioners and efforts should be made to ensure the applicant pool remain abundant. However, there is a critical need to increase clinical rotation sites to support PA training.

It is important to note that the Centers for Medicare and Medicaid Services (CMS) limits PA contribution to Primary Care in proposed Accountable Care Organization (ACO) regulations in several ways:

- Retrospective assignment of Medicare fee-for-service beneficiaries based on primary care services that are provided by an “ACO professional who is a physician” despite PAs being identified as an “ACO professional” in the PPACA. This restrictive language, “an ACO professional who is a physician”, does not allow PAs to practice to their fullest legal potential.
- Reimbursement structure may reduce incentive to use PAs in ACOs. Medicare reimburses PA time at 85% of the physician fee schedule. Proposed ACO regulations would require “incident to” billing at 100% of the physician fee schedule and require the physical presence of the physician in order for the visit to be counted as a primary care visit.

EDUCATION AND TRAINING CAPACITY AND INFRASTRUCTURE

California has nine accredited PA programs, and approximately 420 PA students graduate each year in the state. Each program is allowed to increase by 15% without ARC-PA (the accrediting body) approval for program expansion.

ACADEMIC AND HEALTHCARE INDUSTRY SKILL STANDARDS

Professional competencies for PAs include the effective and appropriate application of the following:

- Medical knowledge
- Interpersonal and communication skills,
- Patient care
- Cultural responsiveness and sensitivity
- Professionalism
- Practice-based learning and improvement
- Systems-based practice
- Continued commitment to learning, professional growth
- Physician-PA team Practice
- Benefit patient and larger community being served

AVAILABILITY OF CAREER INFORMATION AND GUIDANCE COUNSELING

Outreach is specific to each program, including speaking to college and high school students, information sessions, and informational materials to schools. However, overall outreach efforts to promote the PA profession and highlight their role in primary care need to increase, including use of:

- Internet

- Public Service Announcements
- Media
- Veteran Services

PILOT/DEMONSTRATION PROJECTS

Potential pilot projects that increase PA workforce, increase access to primary care and meet specific criteria set forth in the PPACA are outlined below.

Table K-2. Physician Assistants Pilot/Demonstration Projects

DESCRIPTION OF PILOT/DEMONSTRATION PROJECT
<ul style="list-style-type: none">• Satellite campus in rural underserved area with a PA program that emphasizes the use of tele-medicine• Increase shared rotation opportunities in underserved urban areas by developing an evening school-based clinic

Potential funding sources for pilot or demonstration projects include opportunities from the Agency for Health Research and Quality (AHRQ):

- Grant/contracts to address section 3501 of PPACA, Health Care Delivery System Research, Quality Improvement Technical Assistance
- 20% non-federal match would be sought in state grants, foundation grants, etc.
- Both proposed projects would be designed to meet criteria under one or more of the following PPACA sections
 - 3502, Establishing Community Health Teams to support Patient Centered Medical Homes
 - 4002 Prevention and Public Health
 - 4101 School-Based Health Centers
 - 4201 Community Transformation Grants

Appendix L. Academic and Healthcare Industry Skill Standards for High School Graduation, Entry into Postsecondary Education, and Various Credentials and Licensure

California has developed and utilizes established sets of academic and industry standards for high school graduation, entry into postsecondary education and preparation for health career pathways. For California to meet its emerging health workforce needs and individuals to enter and advance in rewarding health careers a sufficient number of candidates must have access to and satisfy these requirements. Key Standards for preparation and entry into the health professions are summarized in this section.

A-G Requirements:

The University of California (UC) and California State University (CSU) systems, California's 4 year public universities, require entering freshmen to have completed a set of courses in high school called the "A-G" requirements. Each letter corresponds to a subject area in which students must complete a minimum number of courses, for example "a" is for History/Social Science, "b" is for English. Students must complete a set of 15 year-long courses in these areas and secure at least a grade of "c" or better in each one. A certain number of courses must be taken prior to a student's senior year. Alternatively, students can meet requirements by taking college courses or achieving certain levels of scores on standardized admissions tests. Specific A-G requirements can be found at:

<http://www.universityofcalifornia.edu/admissions/freshman/requirements/a-g-requirements/index.html>.

In addition to being a requirement for entry into four-year public universities, the knowledge acquired through the "A-G" curriculum is now a prerequisite for many employment positions that had far less stringent requirements a generation or two ago.

Common Core State Standards (CCSS)

On August 2, 2010, the California State Board of Education (SBE) voted unanimously to adopt new standards for both mathematics and English-language arts. The new standards are rigorous, research-based, and designed to prepare every student for success in college and the workforce. The standards are internationally benchmarked to ensure that students are able to compete with students around the globe.

The new Standards are adopted as part of the Common Core State Standards Initiative. This voluntary, state-led effort was designed to establish clear and consistent education standards. Parents, educators, content experts, researchers, national organizations, and community groups from forty-eight states, two territories, and the District of Columbia all participated in the development of the standards.

The CCSS were developed for English-language arts and mathematics, kindergarten through twelfth grade. They were built upon the best state standards; the experiences of teachers, content experts, and leading thinkers; and, feedback from the general public. For more detail regarding the CCSS please see <http://www.cde.ca.gov/ci/cc/>.

California is currently in the process of implementing the new core standards. It is anticipated that the process will take several years but will ultimately have a major positive impact on student preparation for college and the workforce.

Career Technical Education (CTE) Curriculum Standards:

Career Technical Education (CTE) is a vital component of public education in California. CTE is available throughout California for students in grades 7-12 to help them prepare for entry and success in 15 industry sectors and postsecondary education. CTE Model Curriculum Standards (MCS) are the foundation for schools implementing CTE curriculum and programs. CTE standards are developed by secondary and postsecondary educators, representatives from industry and key educational organizations, legislators, students, and families. Standards combine academic content with industry- specific knowledge and skill requirements. They define the skills and competencies students must master in each of the 15 industry sector areas. CTE standards are approved and overseen by the California State Board of Education. Schools throughout the state work with students to master the standards and pursue their career and educational goals. Standards serve as the basis for the curriculum frameworks, instructional materials, and statewide assessments.

California career technical education (CCTE) model curriculum standards are organized in 15 *industry sectors*, or groupings, of interrelated occupations and broad industries. Each sector has two or more career pathways. The Health Science and Medical Technology Sector are designed for students pursuing health careers. There are currently five career pathways that make up this sector:

- *Biotechnology Research and Development*
- *Diagnostic Services*
- *Health Informatics*
- *Support Services*
- *Therapeutic Services*

Each pathway contains two levels of detail: standards and subcomponents. *Standards* are general expectations of what students should know and be able to do. Each standard has at least two *subcomponents* that elaborate on the specific knowledge and skills encompassed by

the standard. There are also two different *types* of standards in each sector: *foundation* standards and *pathway* standards. There are 11 *foundation standards* that all students need to master to be successful in the career technical education curriculum and in the workplace. The foundation standards are uniform in all sectors, although the subcomponents will differ. They cover the 11 areas essential to all students' success:

- 1.0 Academics
- 2.0 Communications
- 3.0 Career Planning and Management
- 4.0 Technology
- 5.0 Problem Solving and Critical Thinking
- 6.0 Health and Safety
- 7.0 Responsibility and Flexibility
- 8.0 Ethics and Legal Responsibilities
- 9.0 Leadership and Teamwork
- 10.0 Technical Knowledge and Skills
- 11.0 Demonstration and Application

The *pathway standards* are concise statements that reflect the essential knowledge and skills students are expected to master to be successful in the career pathway. These standards build on existing career technical education standards, academic content standards, and appropriate standards established by business and industry.

The current detailed foundation and pathway standards for Health Science and Medical Technology are available at <http://www.cde.ca.gov/ci/ct/sf/documents/ctestandards.pdf>.

2011-12 CTE Standards Update Project:

Cindy Beck, from the California Department of Education, provided the following information on the 2011-12 Career Technical Education Standards Project.

The CTE pathways and standards are updated every seven years to ensure that they are relevant and have the necessary requirements for success. Dramatic changes have taken place throughout business and industry since the standards were last approved in 2005. A key focus is

on ensuring that students enrolled in Career Technical Education (CTE) programs are gaining the 21st Century skills and knowledge necessary to be globally competitive. Additionally, with the recently adopted Common Core State Standards (CCSS) at both a federal and state levels, the MCS must align with these new standards to ensure strong interdisciplinary academic and CTE opportunities for the students of California. This process of standards revision is comprehensive to the 15 Industry Sectors identified by the California Department of Education (CDE). The Health Science and Medical Technology Industry Sector includes all health science programs designed to prepare high school students to enter postsecondary education programs leading to health occupations.

In May 2011, the CDE, in collaboration with the California Health Professions Consortium, the California Health Workforce Alliance and the California Community College Healthcare Workforce Initiative, convened a work group of 24 representatives from business and industry, postsecondary and secondary education to begin the review and revision process for the MCS pathways and standards in the Health Science and Medical Technology Industry Sector. The process was occurring simultaneous to and in coordination with the Career Pathways Committee work.

In June, a second meeting was called to continue the review and revision process of the pathway titles and to begin the process of looking at the specific skills and knowledge content necessary for each pathway, and standards.

As a result of the May and June review meetings, a new and dynamic proposal for significant changes to the existing pathways was submitted to CDE. Major changes were proposed including pathway titles and content to better align them with postsecondary education programs and emerging healthcare industry requirements. As part of the process, new criteria were developed for selection and renaming of the current pathways. Using the new criteria revised pathways were developed and submitted to CDE.

Revised Health Science and Medical Technology Pathways

The MCS Standard Workgroup submitted the following revised Health Science and Medical Technology Pathway titles with example occupations to CDE for approval. A final decision on pathway titles has not been provided, but indication is that the pathways titles submitted will be approved with minor adjustments.

Pathway: Patient Care

- Allied Health
- Rehab Health

- Hospice Care
- Nursing
- Physicians, Specialists, Dentists and Pharmacists
- Alternative Medicine
- Mortuary Science

Pathway: Mental and Behavioral Health

- Psychosocial Services
- Substance Abuse Services
- Dementia and Cognitive Disorders

Pathway: Public Health

- Environmental Health and Water Quality
- Community Health and Health Education
- Epidemiology
- Disaster Management
- Gerontology and Geriatrics

Pathway: Patient Advocacy

- Chronic Care Management
- Regulatory Affairs and Policy
- Long-Term Care/Adult Day Health

Pathway: Healthcare Administration

- Medical Records and HIT
- Finance
- Human Resources
- Legal Affairs and Insurance
- Communications and Marketing
- Specialized Healthcare Systems
- Veterans Administration

Pathway: Operational Support

- Engineering and Medical Equipment
- Supplies and Materials Management
- Housekeeping

Pathway: Biotechnology

- Research and Development
- Clinical Trials
- Medical Devices and Products
- Intellectual Property
- Forensic Medicine

Next Steps:

CDE provided the following timeline and next steps for further MCS development, revision and alignment:

- Select a work team of writers to represent each of the approved Health Science and Medical Technology pathways.
- Public Input distribution of pathway titles and standards process.
- Writing teams and industry sector leads meet to begin the standards development and revision process.
- Public review of standards content.
- Alignment of CTE Standards with Common Core Standards.
- Completion of Standards Document and preparation for State Board of Education approval.

CTE pathways and standards are utilized by high school health academies across the state to support student interest and prepare them for health careers.

In addition to the CDE approved MCS Pathways and Standards, there are other successful initiatives to strengthen student preparation for health careers and postsecondary education. One of the most successful is the Health and Science Pipeline Initiative (HASPI) <http://www.haspi.org/>. HASPI, based in San Diego, California is a collaborative network of K-16 educators, industry representatives, and community organizations that are actively engaged in the common effort to improve students' ultimate success in healthcare professions. HASPI preparation is intended for students of all academic levels and backgrounds.

HASPI's three primary goals are to:

- Increase health/medical career awareness
- Improve performance in middle school, high school and college science courses
- Strengthen student transitions and retention rates in college training programs

HASPI's vision is that students who complete a HASPI Health Career Pathway course sequence will be prepared to pursue any health training program of their choice, from technician to physician.

To achieve this vision and goals, HASPI has developed proven standard curriculum materials and teacher training and tools in the following areas:

- 7th grade Life Science
- 8th grade STEM Physical Science
- Medical Biology
- Medical Chemistry
- Anatomy and Physiology
- Medical MicroBio and BioTech
- Medical Theory and Practice

HASPI also offers internships, programs and partnerships to support student health career exposure and success. As an indicator of its success, in high schools where HASPI curriculum and programs have been implemented, high school students have performed at higher levels of proficiency and advanced capabilities than the San Diego County and State of California averages http://www.haspi.org/file-library/HASPI-SD Cty_09-10_CST-MED-BIO-Graphs2.pdf.

HASPI is now working with the California Community College Healthcare Workforce Initiative to replicate its curriculum and programs in multiple counties throughout the state. Its curriculum and tools are readily available on line (see link above).

Licensure, Experience and Educational Requirements

The California Department of Consumer Affairs, Licensing for Job Creation Unit, has developed a very practical and powerful resource for candidates of all backgrounds interested in pursuing health careers. Cindy Kanemoto, the chief of the unit was a member of the Career Pathways Committee. She provided the Committee with a new grid developed by the unit that displays the licensure requirements for healing arts professions in California. The grid contains information for 54 healing arts careers. For each profession included, from acupuncturist to surgeon, the grid provides:

- Licensure and certification name and requirements;
- Minimum educational requirements;
- Minimum experience requirements; and,
- Exam requirements.

Links to profession specific websites are also provided. Information provided was consolidated from state licensing boards. The comprehensive grid includes career options in mental, oral, physical and animal health. The grid is included in Appendix M. It will be part of a brochure to be published in Fall 2011, which also includes career support resources. Promotion of the brochure to key target groups will increase candidate awareness of health career options, their requirements and where to obtain support.

Career Pathway Specific Academic and Industry Skill and Advancement Requirements

The Career Pathway Committee worked with experts in each profession to provide pathway specific academic, licensure and industry requirements. Candidate pathways for career entry and advancement were also developed. Given the short time frame for developing the pathways and degree to which requirements had previously been developed, this information was able to be provided for some but not all pathways. Information is available for the following pathways:

- Primary care nursing (pages 49-50)
- Medical assistants (pages 65-67)
- Public health (page 82)
- Social work (pages 90-91)
- Alcohol and other drug abuse counselors (pages 96-97)
- Direct care workforce (page 101)
- Physician assistants (pages 105-106)

Appendix M. Licensing Requirements for California Healing Arts Professions

The California Department of Consumer Affairs, Licensing for Job Creation Unit, has developed a very practical and powerful resource for candidates of all backgrounds interested in pursuing health careers. Cindy Kanemoto, the Chief of the Unit, was a member of the Career Pathways Committee. She provided the Committee with a new grid developed by the unit that displays the licensure requirements for healing arts professions in California. The grid contains information for 54 healing arts careers. For each profession included, the grid provides:

- Licensure and certification name and requirements;
- Minimum educational requirements;
- Minimum experience requirements; and,
- Exam requirements.

Links to profession specific websites are also provided. Information provided was consolidated from State licensing boards. The comprehensive grid includes career options in mental, oral, physical and animal health. The grid is included in this Appendix. It will be part of a promotional brochure to be published in Fall 2011, which also includes career support resources.

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Acupuncture Board			
Acupuncturist http://www.acupuncture.ca.gov/students/exam_require.shtml	Master's degree granted via completion of a minimum of 3,000 hours of training in a state-approved program or via completion of a minimum of 3,798 hours of training through a Board-approved tutorial program.	Clinical work required in training programs.	California Acupuncture Licensing Examination (CALE)
Board Of Behavioral Sciences			
Licensed Clinical Social Worker	Master's or Doctor's	3200 hours of	LCSW Standard

Table M-1. Licensure Requirements for Healing Arts Professions in California

<p>(LCSW) http://www.bbs.ca.gov/app-reg/lcs_requirement.shtml</p>	<p>degree in social work from an accredited school; 57 additional hours of specific coursework.</p>	<p>supervised work experience within a period of at least 104 weeks (two yrs.) All required supervised experience gained in California must be accrued while registered with the Board as an Associate Clinical Social Worker.</p>	<p>Written Examination <u>AND</u> LCSW Written Clinical Vignette Examination</p>
<p>Associate Clinical Social Worker (Registration)</p>	<p>Master’s or Doctor’s degree in social work from an accredited school.</p>	<p>None</p>	<p>None</p>
<p>Licensed Educational Psychologist (LEP) http://www.bbs.ca.gov/app-reg/lep.shtml</p>	<p>Master’s degree or higher in psychology or counseling (or a degree deemed equivalent) from an accredited school.</p>	<p>Two years of full time experience as a school psychologist; <u>AND</u>, one year of supervised experience in an accredited school psychology program <u>OR</u> one year of supervised experienced as a school psychologist.</p>	<p>Licensed Educational Psychologist Examination (LEPE)</p>

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Board of Behavioral Sciences			
Licensed Professional Clinical Counselor (LPCC) http://www.bbs.ca.gov/lpcc_program/index.shtml	Master's or Doctor's degree in counseling or psychotherapy.	3200 hours of supervised work experience within a period of at least 104 weeks (two yrs.) All required supervised experience gained in California must be accrued while registered with the Board as a Professional Clinical Counselor Intern.	Examinations to be determined.
Professional Clinical Counselor Intern	Master's or Doctor's degree in counseling or psychotherapy.	None	None
Marriage and Family Therapist (MFT) http://www.bbs.ca.gov/app-reg/mft_requirement.shtml	Master's or Doctor's degree in relevant field; 63 additional hours of specific coursework.	3200 hours of supervised work experience within period of 104 weeks (two years.) All required supervised experience gained in California must be accrued while registered with the Board as a Marriage and Family Therapist Intern.	MFT Standard Written Examination <u>AND</u> MFT Written Clinical Vignette Examination.
Marriage and Family Therapist Intern (Registration)	Master's or Doctor's degree in relevant field; 63 additional hours of specific coursework.	None	None

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Dental Board			
Doctor of Dental Science (Dentist) http://www.dbc.ca.gov/applicants/dds/become_licensed.shtml	Graduation from an approved dental school (Doctor's degree).	Clinical work required in training programs.	California Dental Licensure Examination <u>OR</u> Western Regional Examining Board (WREB) Examination
Registered Dental Assistant http://www.dbc.ca.gov/applicants/rda/become_licensed_rda.shtml	Graduation from an approved RDA educational program of a minimum of 800 hours <u>OR</u> 1280 hours of paid work experience as a dental assistant to a licensed dentist <u>OR</u> completion of the California Department of Education 4-month educational program plus 11 months of work experience with a licensed dentist.		Registered Dental Assistant Examination (Practical and Written)
Registered Dental Assistant in Extended Functions http://www.dbc.ca.gov/applicants/rda/become_licensed_rdaef.shtml	Current RDA License and completion of an approved educational program.		Registered Dental Assistant in Extended Functions Examination (Written)

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Dental Hygiene Committee			
Registered Dental Hygienist http://www.dhcc.ca.gov/applications/becomelicensed.shtml	Graduation from an accredited dental hygiene program; certificates of completion for board-approved courses in local anesthesia, nitrous oxide, and soft tissue curettage.		California Registered Dental Hygienist Examination (Clinical)* <u>OR</u> Western Regional Examination Board (Clinical)* <u>AND</u> National Board Dental Hygiene Exam (Written) <u>AND</u> California Law and Ethics Examination (Written)* <small>*Not required for Licensure by Credential applicants.</small>
Registered Dental Hygienist in Extended Functions	Current California RDH license and completion of an approved extended functions training program (90 hours minimum.)		Extended Functions Clinical and Practical Examination <u>AND</u> California Law and Ethics Examination
Dental Hygiene Committee			
Registered Dental Hygienist in Alternative Practice http://www.dhcc.ca.gov/applications/becomelicensed_rdhap_application.shtml	Bachelors degree or equivalent; 150 hours of an approved educational program.	Must have current RDH license; have engaged in clinical practice for a minimum of 2,000 hours during the previous 36 months.	Registered Dental Hygienist in Alternative Practice Law <u>AND</u> Ethics Examination (Written)

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Medical Board			
Physician and Surgeon (US or Canadian Medical School) http://www.mbc.ca.gov/applicant/additional_info.html	Doctor of Medicine degree from a Liaison Committee on Medical Education (LCME)	One continuous year in a single program of Accreditation Council for Graduate Medical Education (ACGME) or Royal College of Physicians and Surgeons of Canada (RCPSC) accredited postgraduate training.	United States Medical Licensing Examination (USMLE) steps 1, 2(CK), 2(CS), and 3. Passing scores may not be older than ten years, unless applicant currently holds a valid license in another state.
Physician and Surgeon (International Medical School) http://www.mbc.ca.gov/applicant/additional_info.html	Doctor of Medicine degree from a medical school that is recognized or approved by the Medical Board of California.	One continuous year in a single program of Accreditation Council for Graduate Medical Education (ACGME) or Royal College of Physicians and Surgeons of Canada (RCPSC) accredited postgraduate training and an additional year of ACGME/RCPSC accredited postgraduate training.	United States Medical Licensing Examination (USMLE) steps 1 and 2(CK). Passing scores may not be older than ten years, unless applicant currently holds a valid license in another state. A valid Educational Commission for Foreign Medical Graduates (ECFMG) Certification.

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Medical Board			
Licensed Midwife http://www.mbc.ca.gov/allied/midwives.html	Completion of a three-year postsecondary education program in an approved midwifery school <u>OR</u> successful completion of the challenge process by Maternidad La Luz (MLL) in El Paso, TX, or the National Midwifery Institute, Inc. (NMI) in Bristol, VT.	The minimum number of clinical experiences are: 20 new antepartum visits 75 return antepartum visits 20 labor management experiences 20 deliveries 40 postpartum visits, with in the first five days after birth 20 newborn assessments 40 postpartum/family planning/gynecology visits.	North American Registry of Midwives (NARM) comprehensive examination.
Registered Contact Lens Dispenser http://www.mbc.ca.gov/allied/rdo_program.html	High School/GED	None	National Contact Lens Examiners (NCLE)
Registered Spectacle Lens Dispenser http://www.mbc.ca.gov/allied/rdo_program.html	High School/GED	None	American Board of Opticianry (ABO)

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Naturopathic Medicine Committee			
Naturopathic Doctor http://www.naturopathic.ca.gov/licensees/applicants/applicants_faq.shtml	Doctorate of Naturopathic Medicine from an approved naturopathic medical school.	Clinical work required in training programs.	Naturopathic Physicians Licensing Examination, Parts 1 and 2
Board of Occupational Therapy			
Occupational Therapist	Graduation from an approved post-baccalaureate occupational therapy program.	Passing the National Board for Certification in Occupational Therapy (NBCOT) exam <u>AND</u> employment as an occupational therapist within the last five years or completion of 40 hours of professional development units within the past two years.	Occupational Therapist Registered Certification Examination (NBCOT)
Occupational Therapy Assistant (Certificate)	Associate or Technical Degree from an approved occupational therapy education program.	Passing the National Board for Certification in Occupation Therapy (NBCOT) exam <u>AND</u> employment as an occupational therapy assistant within the last five years or completion of 40 hours of professional development units within the past two years.	Certified Occupational Therapy Assistant Examination (NBCOT)
Board of Optometry			
Optometrist http://www.optometry.ca.gov/formspubs/instr_opt_app.pdf	Doctor of Optometry degree from an accredited school.	Clinical work required in training programs.	National Board of Examiners in Optometry (NBEO) examination <u>AND</u> California Laws and Regulations Examination (CLRE)

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Osteopathic Medical Board			
Osteopathic Physician and Surgeon http://www.ombc.ca.gov/forms_pubs/application_pkg.pdf	Doctor of Osteopathic Medicine degree from an accredited osteopathic medical school; 12 months post-graduate training.	Clinical work required in training programs.	Comprehensive Osteopathic Medical Licensing Examination (COMLEX), levels I-III (Other equivalent examinations will be considered on a case-by-case basis)
Board of Pharmacy			
Pharmacist http://www.pharmacy.ca.gov/forms/rph_app_pkt2.pdf	Bachelor of Science degree <u>OR</u> Doctor Of Pharmacy degree in pharmacy from an accredited program.	1500 intern experience hours or verified licensure as a pharmacist in another state for at least one year.	North American Pharmacist Licensure Examination <u>AND</u> the California Practice Standards and Jurisprudence Examination for Pharmacists
Registered Pharmacy Technician http://www.pharmacy.ca.gov/applicants/apply_for_a_license.shtml#faq_tech	Associate degree in pharmacy technology from an approved program <u>OR</u> certification by the Pharmacy Technician Certification Board <u>OR</u> certification by a branch of the federal armed services via DD214 <u>OR</u> completion of training specified by the Board (last three options require a High School diploma/GED) <u>OR</u> graduation from a School of Pharmacy recognized by the Board.	None	None

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Board of Pharmacy			
Designated Representative - Wholesaler (Certification) http://www.pharmacy.ca.gov/forms/desig_rep.pdf	High school graduate or GED	One year of paid work experience related to the distribution or dispensing of dangerous drugs or dangerous devices <u>OR</u> meet all of the prerequisites to take the examination required for licensure as a pharmacist <u>AND</u> complete a prescribed training program.	None
Designated Representative - Vet Food-Animal Drug Retailer http://www.pharmacy.ca.gov/forms/desig_rep_vet.pdf	High school diploma/GED	One year of experience <u>AND</u> 240 hours of specialized training specified by the Board, unless the individual (1) is qualified to take the Board's pharmacy licensure examination, or (2) is licensed as a veterinary technician with the California Veterinary Medicine Board or (3) has 1500 hours of experience at a licensed veterinary food animal drug retailer premises.	None

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Physical Therapy Board			
Physical Therapist http://www.ptbc.ca.gov/applicants/pt_apps.shtml	Graduation from an accredited physical therapy program (Master's or Doctor's degree).	Clinical work required in training programs.	National Physical Therapy Examination (NPTE) <u>AND</u> the California Law Examination (CLE)
Physical Therapy Assistant http://www.ptbc.ca.gov/applicants/pta_apps.shtml	Graduation from an accredited physical therapy assistant program (Associate degree).	Clinical work required in training programs.	National Physical Therapy Examination - Assistant (NPTE) <u>AND</u> the California Law Examination (CLE)
Kinesiological Electromyographer (certificate) http://www.ptbc.ca.gov/forms_public/139963_kemg.pdf	Licensure by the Physical Therapy Board <u>AND</u> prescribed training in kinesiological electromyography.	Clinical work required in training programs.	Kinesiological Electromyographer Examination (KEMG)
Electroneuromyographer (certificate) http://www.ptbc.ca.gov/forms_public/139964_enmg.pdf	Licensure by the Physical Therapy Board <u>AND</u> prescribed training in electroneuromyography.	Clinical work required in training programs.	Electroneuromyographer Examination (ENMG)

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Physician Assistant Committee			
Physician Assistant http://www.pac.ca.gov/applicants/applicant_faqs.shtml	Completion of an approved physician assistant program (many PA programs require a two or four-year academic degree for admission.)	Clinical work required in training programs.	Physician Assistant National Certifying Examination (PANCE)
Board of Podiatric Medicine			
Doctor of Podiatric Medicine http://www.bpm.ca.gov/licensing/app_summary.pdf	Graduation from an approved school of podiatric medicine (doctorate degree) <u>AND</u> two years of postgraduate podiatric medical and surgical training.	Clinical work required in training programs.	National Board of Podiatric Medical Examiners, Parts I-III

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Board of Psychology			
Psychologist http://www.psychboard.ca.gov/applicants/license.shtml	Doctorate degree in psychology, educational psychology, or education with the field of specialization in counseling psychology or educational psychology from an accredited or approved educational institution.	Two years (3000 hours) of supervised professional experience.	Examination for Professional Practice in Psychology (EPPP) <u>AND</u> the California Psychology Supplemental Examination (CPSE)
Registered Psychologist http://www.psychboard.ca.gov/licensee/regpsych.shtml	Doctorate degree in psychology, educational psychology, or education with the field of specialization in counseling psychology or educational psychology from an accredited or approved educational institution.	One year (1500 hours) of supervised professional experience.	None
Registered Psychological Assistant http://www.psychboard.ca.gov/licensee/psychassis-inst.shtml	Masters degree in psychology or education with the field of specialization in psychology or counseling psychology.	None	None

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Board of Registered Nursing			
Registered Nurse http://www.rn.ca.gov/careers/steps.shtml	Associate, Bachelor of Science, or Masters degree in nursing. There are also special provisions for LVNs wishing to become registered nurses.	Clinical work required in educational programs.	National Council Licensing Examination (NCLEX)
Clinical Nurse Specialist Certificate http://www.rn.ca.gov/pdfs/applicants/cns-app.pdf	California RN license AND completion of a masters degree program in a clinical field of nursing or a clinical field related to nursing OR certification by a national organization/association whose requirements are equivalent to those in California Business & Professions Code Section 2838.2.	Clinical work required in educational programs.	None
Nurse Anesthetist Certificate http://www.rn.ca.gov/pdfs/applicants/na-app.pdf	California RN license <u>AND</u> completion of a nurse anesthesia academic program approved by the Council on Accreditation of Nurse Anesthesia Educational Programs <u>AND</u> current certification by the National Council on Certification of Nurse Anesthetists.	Clinical work required in educational programs.	None

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Board of Registered Nursing			
Nurse-Midwife Certificate http://www.rn.ca.gov/pdfs/applicants/nmw-app.pdf	California RN license <u>AND</u> completion of an approved nurse-midwifery program <i>OR</i> of a non-approved program with remediation as necessary <i>OR</i> by certification a state or national organization/association whose standards are equivalent to those set forth in the California Code of Regulations Section 1462.	Clinical work required in educational programs.	None
Nurse Practitioner Certificate http://www.rn.ca.gov/pdfs/applicants/np-app.pdf	California RN license <u>AND</u> completion of an approved nurse practitioner program <i>OR</i> completion of a non-approved program with remediation as necessary and verification of clinical competence <i>OR</i> certification by a national organization/association whose standards are equivalent to those set forth in the California Code of Regulations Section 1484.	Clinical work required in educational programs.	None

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Board of Registered Nursing			
Psychiatric/Mental Health Nurse Certificate http://www.rn.ca.gov/pdfs/applicants/pmh-app.pdf	California RN license <u>AND</u> a Masters degree in psychiatric/mental health nursing <u>AND</u> two years of supervised clinical experience in providing psychiatric/mental health counseling services <i>OR</i> certification by a national organization/association as a clinical nurse specialist in psychiatric/mental health nursing.	Two (2) years of supervised clinical experience in providing psychiatric/mental health counseling services.	None
Public Health Nurse Certificate http://www.rn.ca.gov/pdfs/applicants/phn-app.pdf	California RN license <u>AND</u> completion of a baccalaureate degree in nursing that included course work in public health nursing and a supervised practicum <i>OR</i> completion of a non-approved baccalaureate degree program and remediation as necessary <i>OR</i> completion of a baccalaureate degree in a field other than nursing and completion of a specialized public health nursing program that includes a supervised practicum.	Clinical work required in educational programs.	None

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Respiratory Care Board			
Respiratory Care Practitioner http://www.rcb.ca.gov/applicants/requirements.shtml	Associates degree from an accredited respiratory care program.	Clinical work required in training programs.	Certified Respiratory Therapist Examination
Speech-Language Pathology and Audiology and Hearing Aid Dispensers Board			
Speech-Language Pathologist http://www.slpab.ca.gov/applicants/licensing.shtml	Masters degree or equivalent in speech-language pathology or audiology from an approved program.	300 hours of supervised clinical practice <u>AND</u> either 36 weeks of full-time supervised experience <u>OR</u> 72 weeks of part-time supervised experience.	National Examination in Speech-Language Pathology or Audiology
Audiologist http://www.slpab.ca.gov/applicants/licensing.shtml	Doctorate degree or equivalent in speech-language pathology or audiology from an approved program (see website for “grandfathering” qualifications.)	300 hours of supervised clinical practice <u>AND</u> either 36 weeks of full-time supervised experience <u>OR</u> 72 weeks of part-time supervised experience.	National Examination in Speech-Language Pathology or Audiology
Registered Speech-Language Pathology Assistant http://www.slpab.ca.gov/licensees/slpa_faq.pdf	Associate of Arts or Sciences degree in Communication Disorders from an approved program.	Clinical work required in training programs.	None
Speech-language Pathology or Audiology Aide	Completion of a training program established by his/her supervising speech-language pathologist or audiologist and preapproved approved by the board.	None	None

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Speech-Language Pathology and Audiology and Hearing Aid Dispensers Board			
Hearing Aid Dispenser http://www.dca.ca.gov/hearingaid/applicants/genlic.shtml	High School diploma/GED	None	Hearing Aid Dispenser
Veterinary Medical Board and Registered Veterinary Technician Examining Committee			
Veterinarian http://www.vmb.ca.gov/forms_public/vet_inst.pdf	Doctor of Veterinary Medicine degree from an approved school <u>OR</u> graduation from a non-approved school <u>AND</u> completion of an equivalency program through the Educational Commission for Foreign Veterinary Graduates or the Program for Assessment of Educational Equivalence.	Clinical work required in training programs.	North American Veterinary Licensing Examination <u>AND</u> California State Board Examination <u>AND</u> Veterinary Law Examination
Registered Veterinary Technician http://www.vmb.ca.gov/forms_public/rvt_instruction.pdf	Approved degree program in veterinary technology <u>OR</u> completion of a combination of post-secondary education and at least 4,416 hours of practical experience within 24 months under the direct supervision of a California-licensed veterinarian.	See “minimum education requirements” column.	Registered Veterinary Technician Examination

Table M-1. Licensure Requirements for Healing Arts Professions in California

License/Registration/Certificate	Minimum Education Requirements	Minimum Experience Requirements	Exam Requirements
Board of Vocational Nursing and Psychiatric Technicians			
Vocational Nurse http://www.bvnpt.ca.gov/licensing/licensed_vocational_nurses.shtml	Graduation from a California or out-of-state Accredited Vocational Nursing Program <u>OR</u> equivalent education and experience. For more detailed requirements to become a Vocational Nurse, click on the link below: http://www.bvnpt.ca.gov/summary_vn.shtml	For detailed requirements: http://www.bvnpt.ca.gov/summary_vn.shtml	National Council Licensure Examination for Practical Nurses
Psychiatric Technician http://www.bvnpt.ca.gov/licensing/psychiatric_technician.shtml	Graduation from a California Accredited Psychiatric Technician program <u>OR</u> equivalent education and experience. For more detailed requirements to become a Psychiatric Technician, click on the link below: http://www.bvnpt.ca.gov/summary_pt.shtml	For detailed requirements: http://www.bvnpt.ca.gov/summary_vn.shtml	California Psychiatric Technician Licensure Exam

Appendix N. Availability of Career Information and Guidance Counseling to Existing and Potential Health Professions Students and Residents

Availability of career information and guidance counseling to existing and potential health professions students and residents

California is fortunate to have a wealth of resources to provide career information and guidance counseling to existing and potential health profession students and residents. This section summarizes some of the most useful resources that are available. Ongoing efforts are underway to ensure that candidates from all target groups are aware of these resources and are able to take full advantage of them. Three of the Career Pathways Committee's key "Cross-Cutting Recommendations" are:

- Increase awareness of health career options and how to pursue and finance them through more targeted and effective outreach to individuals, parents and advisors at all levels and throughout the pathway. Increase utilization of social marketing, new media and other emerging tools.
- Support California State University System recommendations for health career advising and courses on campuses.
- Increase skill building, academic, advising and "career case management" support for individuals throughout all stages of the pathway to increase retention and success.

These recommendations can be supported by greater promotion and use of existing resources. A key challenge given current economic conditions will be to sustain the resources that are currently in place and be able to expand their promotion and use. In addition, new resources need to be developed along with mechanisms for greater continuity of support for individuals.

Health Career Information Resources:

Health Jobs Start Here is an initiative that was launched and funded by the California Wellness Foundation to increase career awareness and resources for candidates and support their health career pursuit. Health Jobs Start Here (<http://www.healthjobsstarthere.com/>) provides a comprehensive website primarily targeted at students ages 14-24 but with useful information for health job seekers at all stages. It provides useful and searchable information on jobs and internship openings, volunteer opportunities, scholarships and financial aid. Health Jobs Start Here is designed on extensive research with target students about the information they need and the format that is most useful to them. It incorporates the use of video and social media to engage students where they are and support them to move forward. Profiles of professionals and career paths from entry level through those that require advanced degrees are provided.

In addition to a powerful web resource, Health Jobs Start Here also provides tools and materials that teachers, health academy leaders and guidance counselors use in high school and college to inform students about health career options.

Healthcare Pathways Newsletter is a monthly publication that is produced and widely distributed through the Office of Statewide Health Planning and Development (OSHPD) http://www.oshpd.ca.gov/HWDD/HWDD_Healthcare_Pathways.html. The Newsletter contains articles, tips and resources to inspire and inform students from throughout California about the range of health career options and how to pursue them. It also promotes numerous upcoming health career events. Also included are articles on the health needs of underserved communities, emerging solutions and how they relate to health careers. Healthcare Pathways targets high school and college students. The mailing list includes thousands of students, student groups, health academies, high schools and colleges.

Healthcare Pathways has been inspiring students to pursue health careers since the early 1990's. It is a valuable proven resource. It has particularly been effective at assisting underrepresented students and disadvantaged students to pursue health careers.

The OSHPD Health Workforce Development Division, Health Careers Training Program website also includes valuable career information resources, opportunities to finance health training and links to other relevant organizations and resources:
<http://www.oshpd.ca.gov/HWDD/HCTP.html>.

California Health Occupations Students of America (Cal-HOSA) <http://www.cal-hosa.org/>
Cal-HOSA was chartered in 1986 as an official state chapter of the Health Occupations Students of America (HOSA). HOSA's two-fold mission is to promote career opportunities in the health care industry and to enhance the delivery of quality health care to all people. HOSA actively engages health occupations instructors and students in its unique programs of leadership development, motivation, and recognition. HOSA is focused exclusively on secondary, postsecondary, adult, and collegiate students enrolled in Health Science Education programs.

Cal-HOSA provides students and instructors with the opportunity to participate in health clubs and offers proven instructional tools that are integrated into Health Science Education (HSE) curriculum and classrooms. HSE instructors use these tools to focus on the development of the total person and provide students with training far beyond the basic technical skills needed for entry into the health care field.

Cal-HOSA has hundreds of student and instructor participants. In addition to local curriculum and activities, Cal-HOSA also offers an annual statewide leadership conference and connections to national activities. Cal-HOSA also offers an extensive website with materials for advisors and

students and connections to numerous health career related events. Participating students obtain career information, practical experience, counseling and mentoring.

California Partnership Academies (<http://www.cde.ca.gov/ci/gs/hs/cpagen.asp>)

California Partnership Academies (CPA) are three-year programs (grades ten-twelve) structured as a school-within-a-school within California high schools. Academies incorporate integrated academic and career technical education, business partnerships, mentoring, and internships. Emphasis is also placed on student achievement and positive postsecondary outcomes. CPA's are coordinated through the California Department of Education. Of the 340 funded CPA's in California, over 60 are focused specifically on health career preparation.

High School Health Pipeline Programs

In addition to the California Partnership Academies, there are numerous leading health pipeline programs that provide health career exposure, academic preparation, psycho-social support, internships and mentoring that supports successful student pursuit of postsecondary education and health careers. While these programs may not be formally designated by the State as health academies, they offer proven programs that provide health career information and guidance to target students. These programs often have a priority emphasis on students from disadvantaged and underrepresented backgrounds. Some examples of programs that provide outstanding support and have solid track records of assisting students to achieve their academic and career goals include:

- *The Doctors Academy (<http://www.fresno.ucsf.edu/latinocenter/dr-academy.htm>)*

The Doctors Academy (DA) is school-within-a school program at Caruthers, Selma and Sunnyside High Schools, in the Central Valley, for students interested in health professional careers. The program provides extended academic, personal, and career counseling as well as test preparation.

The Doctors Academy includes: Summer school enrichment programs; rigorous accelerated classes with an emphasis on math, science and writing; weekly tutorial support from current CSU Fresno pre-med students; Saturday academies and workshops; special counseling and support services; parent empowerment workshops; medical or health practitioner mentors; clinical placement in medical, science or health settings; special consideration for scholarship at CSU Fresno and consideration for early admission to the UCSF School of Medicine and UCSF School of Pharmacy.

- *Faces for the Future Consortium (<http://facesforthefuture.org/partners.html>)*

The FACES for the Future Coalition is the extension of the successful FACES program, launched in 2000 at Children’s Hospital and Research Center in Oakland. The FACES Coalition now includes FACES programs based at hospitals in San Diego, Hayward and El Centro coming together to replicate their success and provide greater support to students. Coalition members have united around a common mission, set of guiding values and body of work that utilizes Four Key Elements: (1) Health Careers Exploration; (2) Academic Enrichment; (3) Wellness Support; and, (4) Youth Leadership Development.

- *Health Professions High School (HPHS)- (<http://hphsjaguars.com/index.php?id=59>)*

HPHS is charter high school, opened fall 2005, which has 450 9-12th grade students pursuing healthcare careers. Its mission is “to provide students with an outstanding education, rich with relevant academic, application and leadership experiences - using healthcare as a theme. Its core goal is that HPHS graduates will succeed as highly adaptable professionals due to their exceptional skills, diverse assets and excellent habits of mind.

Students study a rigorous, standards-based education that exceeds the University of California a-g requirement list. The course sequence is an “Early College” model; meaning students begin collegiate coursework while in high school. In addition to rigorous academics, students may participate in Health Occupation Students of America (HOSA) leadership training and activities as well as extensive workplace learning with our healthcare partners.

*California Community Colleges Health Workforce Initiative
(http://www.ccewd.net/initiative_hwi.cfm)*

The California Community Colleges Health Workforce Initiative’s mission is to promote the advancement of California’s health care workforce through quality education and services. The Initiative has six Centers that cover the state from the far North Region to San Diego. Centers work closely with industry, economic development and workforce development partners to offer health career curriculum, training programs, guidance and opportunities to community college students. They also provide valuable reports and resources for industry partners.

Health Career Opportunity Programs

California has three Health Career Opportunity Programs (HCOP), funded by the Health Resources and Services Administration (HRSA). HCOP program provide outreach, academic enrichment, career guidance, financial information and numerous support programs to local disadvantaged college and high school students. The goal is to increase the number people from these backgrounds who are competitive applicants for and successfully complete health

professions schools and become health professionals. A priority emphasis is on recruitment and retention of candidates who want to serve and improve the health of underserved communities.

California's HCOP Programs include:

- San Francisco Bay Area HCOP Program (<http://coe.stanford.edu/sfbayhcop/>), a partnership between Stanford School of Medicine, UC Berkeley School of Public Health and San Francisco State University Post Baccalaureate Program. The focus is on supporting students from 4 Bay Area counties to pursue careers in medicine, public health and dentistry.
- California State University, Fresno Health Career Opportunity Program (<http://www.csufresno.edu/hcop/>). The Program's mission is to identify, recruit and assist students from educationally/economically disadvantaged backgrounds to prepare for entry into health professional and allied health careers. The Health Careers Opportunity Program is a partnership between California State University Fresno (Fresno State), College of Science and Mathematics and the University of California, San Francisco Fresno Latino Center for Medical Education and Research.
- University of California, San Diego HCOP conducts academic enrichment programs for students from disadvantaged backgrounds interested in health careers as they progress in their education, beginning in middle school and continuing through professional school. UC San Diego partners National City Middle School, Sweetwater High School and community colleges throughout San Diego and Imperial counties to provide students—who would otherwise not have access—with the resources and tools to help them on their path to becoming health professionals. Mentoring programs, lab activities, workshops and hands-on research projects are a few of the support services that HCOP and HCOE provide to enhance student education.

California Area Health Education Centers (AHEC) (<http://www.cal-ahec.org/>)

The California AHEC Program brings together community and academic interests to improve access to health care and decrease health disparities for all Californians. AHEC develops, with its partners, a population-based approach to health professions education with a special emphasis on community-based training. Supported by a Health Resources and Services Administration grant and the state of California, the AHEC Program accomplishes its mission through a network of fifteen AHEC centers, each located in an underserved area and affiliated with, but separate from a health professions school. All of the AHEC centers are independent community organizations; each governed by an advisory board and strategically located throughout the state. AHEC's offer programs to support students to pursue health careers and numerous programs to educate and promote the health of community members.

*State of California Employment Development Department- One Stop Career Center System
(http://www.edd.ca.gov/jobs_and_training/)*

The State of California Employment Development Department (EDD) provides a comprehensive range of employment and training services in partnership with state and local agencies and organizations. These services, provided through the One-Stop Career Center system, benefit job seekers, laid off workers, youth, individuals currently working, veterans, people with disabilities, and employers. EDD also has a new Workforce 411 section that features information on current and new initiatives, programs, services, success stories, and more. One or more One Stop Centers are located in each of California's counties.

(http://www.edd.ca.gov/jobs_and_training/pubs/osfile.pdf)

Health Career Connection (www.healthcareers.org)

Health Career Connection (HCC) is a non-profit dedicated to inspiring and empowering undergraduate students to choose and successfully pursue health careers. HCC provides exposure, experience and mentoring through its paid summer internship program, workshops and alumni association. HCC provides support to all students but has a priority emphasis on students from disadvantaged and underrepresented backgrounds. HCC's goals are for students to realize their potential as health professionals and become the next generation of capable, diverse health leaders. In partnership with local health organizations and health professions training programs, HCC offers health career outreach, support and opportunities in 4 California regions: Northern California, Central California, Coachella Valley and Los Angeles/San Diego. HCC partners closely with the California State University System, University of California and private universities to recruit and support students.

California State University System, Career Advising

With over 23 campuses and 412,000 students, the California State University System is the largest public university in the country. During 2008 and 2009, the CSU Chancellors Office conducted work funded by a grant from the California Endowment to develop strategies to increase the number of CSU students who obtain career and educational support and gain entry into California health professions schools and jobs in the health field. After an extensive process, priority recommendations were developed which included increasing health career advising at each campus and utilizing new media and other tools to more widely promote health careers. There was also a focus on partnering with health employers and organizations such as HCC to provide greater career advising support to students. Budget cuts have delayed implementation. Of the recommendations but there are still numerous initiatives underway on campuses that promote health careers and support students to enter training programs.

Acronyms Utilized in Main Report

ACOs	Accountable Care Organizations
ADN	Associate's degree in nursing
BSN	Bachelor of science in nursing
CAADAC	California Association of Alcoholism and Drug Abuse Counselors
CADD	California Association of Deans and Directors of Social Work
CalSWEC	California Social Work Education Center
CHA	California Hospital Association
CHWs	Community health workers
CHWA	California Health Workforce Alliance
CINHC	California Institute for Nursing in Healthcare
CLSs	Clinical laboratory scientists
Committee	Career Pathways Sub-Committee
Council	Health Workforce Development Council
CPAC	California Program on Access to Care
CPHAWC	California Public Health Alliance for Workforce Excellence
FTE	Full time equivalent positions
HLWI	Health Laboratory Workforce Initiative
HRSA	Health Resources and Services Administration
MLT	Medical laboratory technician
OSHPD	Office of Statewide Health Planning and Development
PPACA	Patient Protection and Affordable Care Act of 2010
SEIU	Service Employees International Union
State Board	California Workforce Investment Board

References

California Association of Deans and Directors of Schools of Social Work and the California Social Work Education Center (CalSWEC). Master Plan for Social Work Education in the State of California (July 2004).

California Board of Registered Nursing (a). Survey of Registered Nurses in California, 2010. July 2011. Available at <http://www.rn.ca.gov/pdfs/forms/survey2010.pdf> (accessed December 5, 2011).

California Board of Registered Nursing (b). Nursing Workforce Sample Survey, 2010. 2011.

California Board of Registered Nursing (c). 2009-2010 Annual School Report. February 2011. Available at <http://www.rn.ca.gov/pdfs/schools/schoolrpt09-10.pdf> (accessed December 5, 2011).

California Board of Registered Nursing (d). Forecasts of the Registered Nurse Workforce in California. November 2011. Available at <http://www.rn.ca.gov/pdfs/forms/forecasts2011.pdf> (accessed December 5, 2011).

California Institute for Nursing and Health Care. Personal communication. 2011.

Coffman J and Ojeda G (California Program on Access To Care). California Program on Access to Care White Paper: Impact of National Health Care Reform on California's Health Care Workforce. October 2010. Available at http://www.ucop.edu/cpac/documents/coffman_ojeda_whitepaper.pdf (accessed June 19, 2011).

Daley S. Review of Alcohol and Other Drug Abuse Counselor Certifying Organizations' Registries. (Personal Correspondence.) December 2011. Information on Certifying Organizations can be found at the following websites:

- American Academy of Health Care Providers in the Addictive Disorders (AAHCPAD): www.americanacademy.org
- Association of Christian Alcohol & Drug Counselors: www.acadc.org
- Board for Certification of Addiction Specialists: www.caarr.org
- Breining Institute: www.breining.edu
- California Association for Alcohol and Drug Educators (CAADE): www.caade.org
- California Association of Drinking Driver Treatment Programs (CADDTP): www.caddtp.org
- California Certification Board of Alcohol and Drug Counselors: www.caadac.org
- California Certification Board of Chemical Dependency Counselors (CCBCDC): www.californiacertification.org
- Indian Alcoholism Commission of California, Inc.: www.iaccinc.net

Department of Health and Human Services Substance Abuse and Mental Health Services Administration, Addictions Treatment Workforce Development. Report to Congress. Available at: http://pfr.samhsa.gov/docs/report_to_congress.pdf (accessed December 6, 2011).

Department of Health and Human Services Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Treatment. Substance Abuse Treatment Workforce Environmental Scan. November 2003. Available at: http://pfr.samhsa.gov/docs/Environmental_Scan.pdf (accessed December 6, 2011).

Grumbach K, Chattopadhyay A, and Bindman A. Fewer and More Specialized: A New Assessment of Physician Supply in California. California HealthCare Foundation. June 2009.

Horton, M, Director of the California Department of Public Health. Presentation to the Public Health Workforce Summit held by the Pacific Public Health Training Center. June 2010.

Hospital Association of Southern California. Allied for Health, Quarterly Turnover and Vacancy Report. 1st Quarter, 2011.

Institute of Medicine/Robert Wood Johnson Foundation. The Future of Nursing: Leading Change, Advancing Health Recommendations from the IOM/RWJF Initiative on the Future of Nursing. October 2010.

Kaiser Permanente. Cost Studies at Northern California Kaiser Permanente. January 2010.

Lavarreda SA and Cabezas L (UCLA Center for Health Policy Research). "Two-Thirds of California's Seven Million Uninsured May Obtain Coverage Under Health Care Reform." February 2011. Available at <http://www.healthpolicy.ucla.edu/pubs/files/SHIC%202009%20PB%20REVISED%204-4-11.pdf> (accessed July 21, 2011).

McLellan AT, Carise D and Kleber H. "Can the National Addictions Treatment Infrastructure Support the Public's Demand for Quality Care?" *Journal of Substance Abuse Treatment* 25(2), 2003, pp. 117-121.

Patient Protection and Affordable Care Act of 2010 (PPACA) that was signed into law by President Obama on March 23, 2010.

Substance Abuse & Mental Health Services Administration. An Action Plan for Behavioral Health Workforce Development. 2007.

Substance Abuse & Mental Health Services Administration. Chapter 5: Substance Abuse Treatment Expenditures, 2001. In: National Expenditures for Mental Health Services and Substance Abuse Treatment 1991–2001. February 2009. Available at <http://www.samhsa.gov/spendingestimates/chapter5.aspx> (accessed December 6, 2011).

UCLA Integrated Substance Abuse Programs. ISAP News. Volume 3, Issue 2. June 2005.
Available at
<http://www.uclaisap.org/newsletter/documents/June%202005%20Issue.pdf> (accessed
December 6, 2011).

University of California, San Francisco, The Center for the Health Professions. Linder and
Chapman: "The Clinical Laboratory Workforce in California," 2003.