CENTER FOR THE HEALTH PROFESSIONS

CAREER PROGRAMS FOR CALIFORNIA'S PIPELINE OF SECONDARY STUDENTS: AN OPPORTUNITY TO ADDRESS THE STATE'S WORKFORCE SHORTAGES

Sharon Christian and Susan Chapman
UCSF Center for the Health Professions

Introduction

Statewide shortages of health care providers currently exist in several professions, and are projected to increase dramatically due to population growth and aging.[1] Moreover, California's health professions workforce does not reflect the state's demographic, racial, and ethnic composition. The Latino and African American populations are under-represented in most health professions, which can negatively impact quality of care.[2] To alleviate the strain, the California Postsecondary Education Commission is mandated to "periodically conduct studies of projected manpower supply and demand in cooperation with appropriate state agencies."[3] This brief is particularly relevant because it discusses efforts to address the shortage by increasing secondary school students' exposure to health care careers.

Career technical education for California high school students includes:

- **Academy Models**
- **Regional Occupational Centers and Programs (ROCPs)**
- **Magnet Programs**
- **Stand alone health professions high schools**

The California Department of Education has long been examining ways to develop partnerships between the educational sector and the health care industry.[4] Several privately and publicly funded efforts have strengthened the health career pipeline. However, remaining challenges, such as inequitable educational opportunities, impede workforce development.[5] Small school districts often cannot offer pathway programs due to cost pressures and low numbers of students.[6] Only when economic conditions permit do county offices provide vocational education.[7] Although an estimated 100 health career programs are now open to California's secondary students, hospitals and clinics still report difficulty hiring skilled workers.[8] Researchers reason that the state's nursing shortage partly stems from systemic barriers to providing a coordinated sequence of courses for high-demand occupations.[9] In response, the Legislature created the Health Science and Medical Technology Project in 2006 to support the creation and expansion of health career pathway programs in middle and high schools.[10]

Career Technical Education (CTE)

Career technical education (CTE) is an umbrella term used to describe various programs that focus on preparing students for entry into the labor market. Currently, California has a patchwork of CTE programs scattered across the state's 1,221 public secondary schools and 990 districts.[11] The state's Tech Prep Regional Coordination Project attempts to establish an integrated system that provides pathway programs to meet workforce needs.[12] CTE programs embody varied goals, such as preventing students from dropping out, preparing them for college, and helping them with job placement.[13] Career and college preparation are often perceived as mutually exclusive choices. Studies of career academies, however, suggest that CTE programs can educate students in both areas without such tradeoffs.[14]

Our research began with telephone interviews with key experts to locate general data sources.

We then conducted a literature review to pinpoint leading authorities. This report draws upon four main sources: ConnectEd (Berkeley), The Little Hoover Commission (Sacramento), MDRC (New York, Oakland) and the California and U.S. Departments of Education.

Background

An estimated 406 schools in California offer a range of CTE programs to two million public high school students.[15] Evidence indicates that some ethnic subgroups, including African American and Latino students, achieve greater gains from CTE programs than the average CTE student. Studies have also shown that CTE programs provide the greatest benefit to those most at risk of dropping out.[16] However, researchers estimate that only 10 percent of the state's public high school students have access to CTE classes or career-themed high schools.[17] CTE courses must meet state standards, which are organized into 15 industry sectors and 58 career pathways. In 2005, the California Department of Education issued CTE standards requiring the content of CTE courses to be as rigorous as those of high school academic courses.[19] However, the state lacks any mechanism to ensure that the standards are enforced. Thus, a growing number of high schools and districts are implementing nationally-developed curricula.[20]

In 2002, over 50 percent of public high schools in the U.S. offered occupational programs in health care.[18]

Broad Range in Structure of CTE Programs

California's secondary school students have several alternatives to regular high school. The entire range of CTE program types is difficult to capture. Generally, CTE programs are classified as "small learning communities," (SLCs) which encompass any separately defined learning unit within a larger school.[21] Configurations may vary from units that supplement a school's departments to entirely separate schools sharing a common physical location. The distinctive characteristics of each program often overlap among models depending on regional needs. Types of SLCs can include California Partnership Academies and schools-within-schools, each with a special theme or focus.[22] Structures include charter, magnet, alternative, and multiplex. Distinctions among these structures include their mission, instructional focus, admission policies, and relationship, if any, to a larger school.[23]

Academy Models

Typically serving students from grades 10 to 12, career academies are: 1) organized as SLCs to create a more personalized learning environment; 2) combine academic and technical curricula around a career theme; and 3) establish partnerships with local employers to provide work-based learning opportunities.[25] Located in medium and large school districts, academies function as schools-within-schools, and reflect many stressful conditions of urban settings. Students often come from disadvantaged backgrounds with poverty, crime, and low academic achievement.[26] In recent years, district efforts to convert large high schools into clusters of SLCs have increased significantly.[27]

"Although there are many models of SLCs, the distinctions among them are frequently unclear because their variety is as individual as the districts and schools in which they are housed."[24] *California Department of Education, 2006*

In 2008, the state Department of Education reported funding 340 California Partnership Academies (CPAs).[28] An earlier report, in 2004, identified CPAs in 208 high school campuses, with some schools offering more than one academy, serving about three percent of the state's secondary students, or 33,000 individuals.[29] The career themes of CPAs are determined by analyses of local labor markets. Programs are kept broad, focusing on industries rather than specific jobs.[30] CPA funding is performance-based, meaning that only students meeting minimum attendance and credit requirements may enroll.[31] In 2004, the state had 51 career academies focused on health.

Table 1 displays the percentage and number of students in these CPAs by race and ethnicity. The number of health career academies has now grown to 61, serving an average of 150 students per academy.[32]

Table 1. Percentage and Number of Students Enrolled in Health Career CPAs*, by Race/Ethnicity and Number of Academies, 2004-05[33]

Race/Ethnicity	Percentage	Number
Native American	1.00%	64
Asian	10.70%	692
Pacific Islander	1.10%	72
Filipino	3.20%	206
Hispanic/Latino	46.20%	2977
Black	11.30%	727
White	25.30%	1629
Multiple/No Response	1.30%	83
No. of CPAs	51	

Source: ConnectEd, 2007
* Industry Area is Health Sciences and Medical Technology

CPAs have been studied more than any other type of CTE program in the state because of their student body requirements.[34] Under state law, at least half of all students in each academy must meet at least three of four "at-risk" criteria: prior irregular attendance; a record of under achievement; disinterest in the regular academic program; and, economic hardship.[35] Students apply voluntarily and are selected on the basis of need and interest.[36] An estimated 2,500 career academies are offered around the U.S.[37]

In a controlled study, researchers found that graduates of nine randomly sampled academies across the U.S. earned 11 percent more per year than did students in the non-academy group. These differences were concentrated among young men. The report also suggested that the academies had the most pervasive effects on high-risk secondary students. However, the programs did not appear to impact high school academic performance.[38] The study revealed more potential limitations of the academies' effectiveness. For example, it found that academies did not truly integrate academic and career-related curricula.[40] Another study found that students enrolled in academies had higher graduation rates than their peers.[41] Despite other positive outcomes, the study concluded that standardized test scores were lower for academies than for traditional high school programs. However, several limitations may apply to key studies. For instance, at least half of the students admitted to the academies are at-risk.[42] Additionally, accuracy cannot be guaranteed where data is self-reported by the academies. Also, the quality of the programs varies across the state.[43]

> ***"Career academies face a special challenge to increase academic rigor while continuing to prepare students for the labor market."[39]***
> ***MDRC, 2008***

ROCPs and Magnets

California's 74 Regional Occupational Centers and Programs (ROCPs) provide high school and adult students with career preparation courses that teach both technical and academic skills.[44] They collaborate with public agencies and associations to create instructional programs, such as the Certified Nurse Assistant/Home Health Care Aide Program. ROCPs constitute the state's largest workforce preparation system.[45] Approximately 460,000 students enroll in ROCPs each year.[46] ROCPs are hosted in a variety of venues, including high school campuses and other locations that draw students from multiple high schools.[47] Researchers discovered that the academic achievement of ROCP students was significantly lower than that of their peers, a possible indication ROCPs are used to meet the needs of more at-risk students, or those who do not intend to continue in postsecondary education.[48] Magnets are another CTE model offered in 337 schools throughout California, serving 127,000 students.[49] They usually have a core focus, such as health sciences, and typically draw students from an entire district. Many magnet programs reflect a district strategy to achieve racial and ethnic balance. Generally, they are federally funded and locally designed.[50]

Stand-Alone Health Professions High Schools

Three small, stand-alone health professions high schools are currently open to secondary students in Northern California. They enroll under 1,000 students between grades nine and 12. Because the programs are relatively new, little data is available for comparative study. Nonetheless, these schools are worthy of further attention, given their strong reputations and distinctive characteristics. In 2005, Arthur A. Benjamin Health Professions High School in the Sacramento Unified School District was established in response to the region's serious shortage of healthcare workers. It utilizes a legally approved "multiple

pathways" approach, which prepares students for success after high school, regardless of postsecondary goals.[51] Dozier-Libbey Medical High School is a magnet program in the Antioch Unified School District. It originally opened in 2008 to help lower the populations in existing high schools. The planning committee subsequently selected the health career focus after it researched local job market needs.[52] Finally, LIFE Academy of Health and Bioscience in the Oakland Unified School District was established in 2001. Over 90 percent of the students have minority backgrounds, and 75 percent of the school population is classified as socioeconomically disadvantaged.[53]

Key Barriers

While promising on a number of fronts, career technical education in California's secondary education programs faces significant barriers. These include insufficient data, inconsistent funding sources, and teacher shortages.

Insufficient Data

CTE programs serve a large, diverse population with varied expectations. Goals for different programs may involve preventing drop-outs and preparing students for college and/or employment. Program objectives, which may encompass a combination of these goals, are typically not well-articulated. Measuring outcomes against unspecified expectations is challenging at best.

Further, although a limited number of studies concluded with positive outcomes for CTE programs, career-themed high schools with model programs are generally scattered across the state without processes to measure system-wide outcomes so that effective models can be replicated.[54] For example, under California law, a school district's participation in any long-term evaluation of its Partnership Academy is voluntary.[55]

Other challenges in tracking students include privacy laws preventing states from accessing data across secondary and postsecondary education and the workforce. Thus, states with data systems often heavily depend on student surveys, which may not be reliable.[56] In addition, academically challenging CTE courses are not yet widely available. As a result, few students can be monitored.

Researchers have concluded that California lacks a coherent strategy to integrate CTE into high school education, hampering the state's ability to effectively use its resources to expand proven CTE programs to meet workforce goals.[57] Consequently, high quality programs are not sufficiently accessible to students, while some outdated programs that lack academic rigor and relevance to the labor market are still offered.[58] Although attempts have been made to convene leaders to forge a unified strategy, many groups cannot sustain their momentum when administrators change, or when competing programs are initiated.[59]

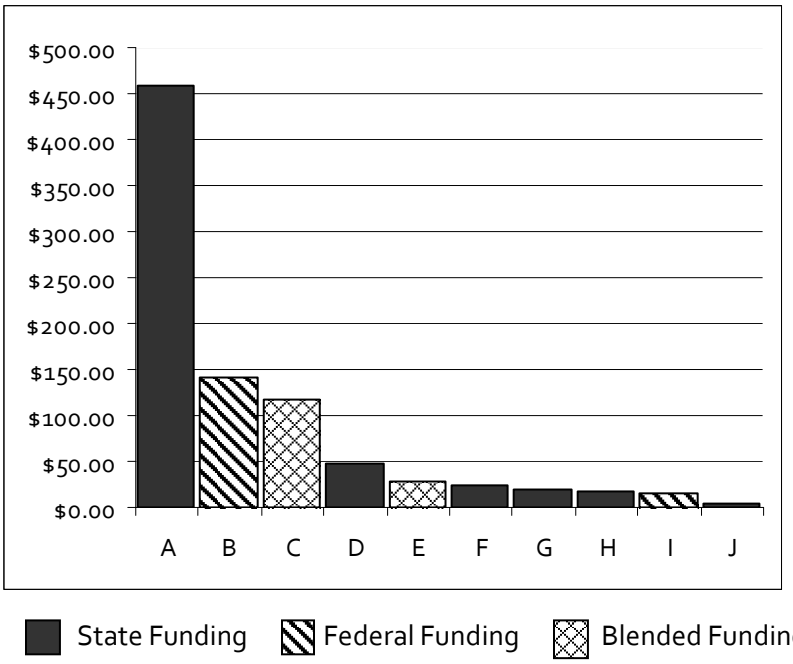
Fragmented Funding Sources

CTE programs are funded by a range of state, federal, and private sources, making it difficult to determine how much and how well money is spent. Funding is spread across three layers of government: federal, state, and local, including two different state departments responsible for education.[60] Philanthropic and foundation grants, such as the Bill and Melinda Gates Foundation and the James Irvine Foundation, have also played significant roles in guiding local districts with the creation of CTE programs.[61] California foundations, too, are supporting program evaluation and efforts to increase awareness of health care careers among high school students. While these systems can and do work in concert, their fragmentation causes dysfunction, which creates barriers that limit student access.[62]

The state's Health Careers Education (HCE) program supports three programs with the help of federal dollars from the Carl D. Perkins Career and Technical Education Improvement Act ("Perkins III").[64] The first program, the California Health Science Capacity Building Project, provides incentive grants to prepare students to meet worker shortages in the healthcare industry. It will dedicate $2.5 million to allied health programs until 2012.[65] The state's HCE program also funds ROCPs and CPAs.[66]

Figure 1 displays the overall funding for CTE in 2006. It shows that state funding comprises just over half of all CTE programs.

Figure 1. Breakdown of Ongoing State and Federal Categorical Funding for CTE in 2006 (Total: $873.65 million) [63]



*Dollars in millions

A	ROCPs, $457.61, 53%
B	Perkins, $141.18, 16%
C	Adult Education (Vocational Component), $117.35, 13%
D	Economic Development Program at CCC, $46.79, 5%
E	Nursing, $28.39, 3%
F	Academies, $23.49, 3%
G	Governor's CTE Initiative, $20.00, 2%
H	Apprenticeship, $18.26, 2%
I	Smaller Learning Communities, $15,58, 2%
J	Agriculture, $5.00, 1%

Source: Little Hoover Commission, 2007

Under the Governor's CTE Initiative of 2005, California will commit over $400 million to expand and improve CTE programs until 2014.[67] The new money initially offered competitive grants through the community college system to strengthen CTE pathways among middle and high schools, ROCPs, and community colleges.[68] An additional $3 billion will be distributed under the initiative pursuant to a legal settlement between the governor and the California Teacher's Association.[69] A Legislative Analyst's Office (LAO) report evaluating the first year of the initiative revealed that most of the grants were distributed to address a lack of coordination among local interests.[70] Since the grants were awarded on a competitive basis, not all communities received the money. The LAO thus concluded that the initiative may be attempting to fund too many activities, and that the state lacked a long-term plan for the revitalization of CTE programs.[71]

Federal efforts to improve the quality and availability of career paths for secondary students are funded by Perkins III, which awards $11.2 million to California annually.[72] However, researchers discovered that the federal goal of integrating vocational education with academics has been slow to produce significant reforms. Improvement appears to be hampered by a lack of clarity over the program's fundamental purpose, as current strategies may be too vague to drive change.[73] In addition to Perkins funds, the Federal Economic Stimulus Package allocates $3.95 billion for Workforce Investment Act (WIA) training and employment services.[74] California will receive an estimated $189 million for WIA youth activities.[75] Federal support is also authorized under the Elementary and Secondary Education Act, which provides local agencies with funds to create or expand SLCs in high schools of 1,000 students or more.[76] The legislation allows districts to implement the most suitable structure to meet their needs.

Teacher Shortages

Most teachers emerge from colleges of education prepared for general education, but unprepared to teach CTE because most colleges of education do not offer occupational education courses. Consequently, California suffers a shortage of credentialed CTE teachers, as numbers have declined by nearly 1,200 since 2000.[77] Other factors that erode the overall teacher workforce similarly affect CTE instructors. Evidently, the CTE credentialing process is a major hurdle to increasing the number of teachers needed. Barriers, such as recent job-history requirements, prevent qualified professionals with previous industry experience from entering the CTE teacher workforce.[78] In response, legislation was passed

in 2007 to update CTE credentialing to match the 15 industry sectors.[79]

Future Directions

> *"For too long, the state has spent money without making its priorities clear, without expecting results and without measuring outcomes."*[80] *California Little Hoover Commission, 2007*

Despite noted accomplishments, researchers contend that more could be done to align CTE programs with economic conditions to ensure that courses match high-demand jobs in the state. Specifically, studies suggest that local efforts to make connections should take priority over state-level efforts.[81] Studies also stress that connecting with local employers to set up work-based learning opportunities requires a full-time person.[82] Researchers further recommended that the state implement accountability requirements for CTE programs. Importantly, California is now incorporating federal requirements regarding race and ethnicity into the Longitudinal Pupil Achievement Data System.[83] Nonetheless, experts agree that the state needs to ramp up its data capacity to enable policy-makers and educators to understand the strengths and weaknesses of current efforts.[84]

Conclusion

This study explored the types of health career programs accessible to secondary students in California. It examined current data on the availability, funding, and impact of the programs to inform stakeholders of opportunities to target this pipeline for the purpose of alleviating persistent health workforce shortages. The programs continue to hold great promise, but also face challenges. In particular, to effectively increase California's health workforce supply through high school health career programs, more attention must be placed on clarifying CTE objectives at the programmatic level, tracking progress towards those objectives, and coordinating efforts to replicate successful models. These steps could fulfill the intentions of past, current, and future investments in CTE programs.

Notes

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[15] Personal communication with Aaron Malloy, ConnectEd Research Associate (Apr. 23, 2009); "Fact Book 2008," *supra*, note 7, p. 10.
[16] Little Hoover Commission, *supra*, note 9, p. 7.
[17] Personal communication with Aaron Malloy, ConnectEd Research Associate (Apr. 22, 2009).
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[31] State grants must be matched by both the receiving district and business partners. Id.
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[33] ConnectEd, *supra*, note 29, p. 37.
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[36] "Program Overview," *supra*, note 28.
[37] MDRC, *supra*, note 14, pp. 42-43.
[38] Id. at iii, 1, 9, 34, 37-39.
[39] Id. at 41.
[40] Id. at 10.
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University of California, San Francisco
3333 California Street, Suite 410
San Francisco, CA 94118

http://futurehealth.ucsf.edu