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COLLECTING HEALTH WORKFORCE DATA IN CALIFORNIA

California has recently embarked on a momentous effort. Although several of the health professions boards maintain databases about their licensees – including total number licensed and mailing addresses – the information has been inconsistent and variable over the years and across the professions. For the first time, the Legislature has charged the state's Office of Statewide Health Planning and Development with establishing a clearinghouse of data about California's health care workforce. Such a coordinated effort could mean that policy makers will have good, solid information on which to base their decisions.

Introduction

While quite promising, this data collection endeavor raises its own set of questions about how health professions data are currently being collected in California and elsewhere, and how the process could be improved. To provide background, this report outlines several examples of data collection efforts. Similarities and differences among California's boards and between California and other states are explored. In addition, common challenges are raised and possible ways to address those challenges are proposed. The table on the following pages provides a summary of current or proposed data collection efforts for California's physicians, nurses and dentists. For comparison, categories of health professions data collected in North Carolina and Texas are also included.

California faces a number of questions about its health care workforce

- Do we have sufficient numbers of doctors, nurses, and dentists to meet the state's needs now and into the foreseeable future? Should we build any new schools?
- Where are professionals practicing? Are rural areas – or any other defined areas – particularly hard hit by shortages?
- How does the racial and ethnic profile of the health workforce compare to that of the general population?
- Have changes to practice acts improved access to care for underserved populations?
- Do doctors and other health care workers have foreign language skills to meet the needs of their patients?
- Have public and private efforts to address nursing shortages been successful?

California, North Carolina, and Texas Health Professions Board Data Collection Comparisons

		Medical Board of CA	CA Board of RN*	Dental Board of CA**	NC Minimum Data Set	TX Minimum Data Set
	When are data collected?	License renewal	Sample survey every 2 yrs; not w/license renewal;	License renewal	License renewal annual for most boards; others 2 yrs	License renewal
	Length of survey	14 questions***	69 questions	To be determined.	21 questions	28 questions
A	**DEMOGRAPHICS****					
1	**General Demographics**		**X**		**X**	**X** (optional)
a	Gender		X		X	X (optional)
b	Year of Birth/Birth date		X		X	X (optional)
c	Marital Status		4 options			
d	Children living at home/Dependents		# and ages/YorN			
e	Place of birth					X (optional)
2	**Residence**		**X** (zip code, residence outside of CA)		**X** (street, city, county, state, zip)	
a	Residence Outside of CA		If yes, 6-options regarding how respondent may have worked with CA clients			
3	**Cultural/Ethnic Background**	**28 options** - can choose multiple; can choose 'decline to state'	**10 options -** only 1 choice allowed	**X** (optional)	**X**	**15 options** (optional)
a	Are you of Hispanic origin?					X (optional)
4	**Foreign Language Proficiency**	**31 options** - fluent only; can choose 'decline to state'	**8 options** - fluent only	**X** (optional)		
B	**EDUCATION & TRAINING**					
1	**Professional Education**		**X** (grad year, state, country)		**X** (degree, school, state, grad year)	**X** (degree, school, county/state/country, grad year)
2	**Specialty Certifications/Areas**	**51 options** - primary, secondary, board certification	**7 options**	**X**	**X**	**X** (optional - primary specialty)
3	**Licensure**		**X** (state, country, year first licensed, year first licensed in CA, length of practice, any active license in other states		**X** (date, license #, license type (e.g. regular, temp.)	**X** (date; method, #, & status of certification, registration, or license)

* This column only represents questions on the Active RN Survey. There is also a survey sent to inactive RNs.
** Per CA Assembly Bill No. 269, the Dental Board will not start collecting this data until Jan. 1st, 2009. The information here was obtained from Bill No. 269.
*** There are only nine numbered questions on the CA Medical Board renewal survey. However, there are additional questions that are not numbered.
**** Some demographic data are collected by the boards at initial licensure; this chart covers only information collected through renewal processes.

		Medical Board of CA	CA Board of RN	Dental Board of CA	NC Minimum Data Set	TX Minimum Data Set
4	**Additional Education Information**	**X**	**X**		**X**	**X**
a	Location of high school					X (optional)
b	Education prior to professional degree		X (highest level completed)			
c	Have you earned any additional degrees since graduation?		X			
d	Highest degree obtained				X (optional)	X
e	Employment in health occupation prior to professional education		X			
f	What type of program did you receive pre-licensure education in?		6 options			
g	Total years in post-grad training	X				
h	Current education/training status	X (resident, fellow, not in training)	X (degree objective, how are tuition/fees financed)		X (student in field vs. not in field)	
i	Continuing education	X (min hrs, pain mgmt/end of life care, geriatric care)				
C	**EMPLOYMENT**					
1	**Employment/Practice Status**		**X**	**X**	**X**	
a	Active, inactive, retired, or other?		X	X (Active - in CA vs. out of CA; Active w/o direct patient care; Retired; Other)	X (Student - in field vs. not in field; Retired; Other)	
b	Do you have more than one job?		X			
c	Gap in employment in your field?		X (How long? Why? - 15 measures)			
d	If a gap in employment, demonstration of competency?		X(If yes, how long did you have to demonstrate competency for?)			
e	Employed in profession/field?		X		X (FT vs. PT)	
f	If not employed in profession/field when last worked in?		X			
g	If not employed in profession/field what influenced you to leave?		X (16 measures)			
h	If not employed in profession/field, plans to return to field		X (5-options)		X (Unemployed vs. employed in other field)	
i	If not employed in profession/field, factors that may influence return		X (12 measures)			
j	If not employed in profession/field, Other		Does your position utilize your nursing knowledge?			

		Medical Board of CA	CA Board of RN	Dental Board of CA	NC Minimum Data Set	TX Minimum Data Set
2	**Employment**		**X** (for Primary Position)	**X** (in profession)	**X**	
a	Full Time/Part Time		X (in field vs. not in field)	X (FT = 32hrs/wk or more; PT = 32hrs/wk or less; Practice in CA vs. Outside of CA)	X (in field vs. other field)	
b	How long with principal employer?		X (yrs/mos)			
c	Type of employee (primary position)		X (regular, temp. service, self-employed)			
d	Type of employee (secondary/additional position)		X (regular, temp. service, self-employed)			
e	Temp/Traveling Agency		X (If yes, 10 options)			
f	Self-employed		X			
3	**Practice Location**	**X** (zip code only)	**X** (for primary position - zip code, city, county, state)	**X** (zip code)	**X** (Required - zip & county of primary practice; Optional - practice name, street, & city of primary practice)	**X** (Required - FIPS codes 48001-48999; Optional - Full mailing address: street #/name, city, county, state, 9-digit zip)
a	One-way distance to work (mi)		X (avg. distance)			
b	In CA or outside of CA?		X (If you reside outside of CA, how many months in past year did you work in CA?)	X (FT vs PT in CA; FT outside of CA)		
c	Secondary practice				X (optional - location & setting)	X (optional - 9-digit zip & county)
d	Do you practice telehealth?		X (If yes, across state lines?)			
4	**Practice/Position Setting**		**X** (primary position setting (including temp) - 19 options; Primary clinical setting of direct patient care - 20 options)		**X**	**X** (optional - description of primary or secondary practice settings)
5	**Work Activities & Distribution**	**X**	**X**	**X**	**X**	**X** (optional)
a	Patient care	hrs/wk	% Direct vs. indirect			
b	Research	hrs/wk				
c	Teaching/Education	hrs/wk	%			
d	Supervision		%			
e	Administration	hrs/wk		X		
f	Patient education		%			
g	Other	hrs/wk	%	X		
h	In non-primary positions what type of work?		9 options			
i	Time at all positions in field		X (hrs/day, hrs/wk, wks/yr, overtime hrs)		X (optional - hrs/wk)	
j	Time at positions not working in field		X (hrs/wk)			
k	Time at primary practice location					X (optional - hrs/wk)
l	Time at Primary Position/Role		X (hrs/wk, wks/yr)			
m	What is your primary title/role?		19 options			
n	Roles/positions in addition to primary		X (How many? - 4 options)			

		Medical Board of CA	CA Board of RN	Dental Board of CA	NC Minimum Data Set	TX Minimum Data Set
6	**Employment Future**		**X**		**X** (Plans to return to field if currently separated)	
a	Plans in the near future regarding employment status/hours		X (Next 5 yrs - 5 options)			
b	Plans to work in CA if currently residing outside of CA.		X (Next 5 yrs - 7 options)			
D	**FINANCIAL**					
1	**Financial Disclosures**	**X**	**X**			
a	List health-related facilities you or immediate family have financial interest in	X				
b	Annual Earnings for Primary Position		X			
c	Annual Earnings for Additional Positions		X			
d	Total household income (pre-tax) last year		10 options			
e	What percentage of total household income come from your job?		7 options			
E	**OTHER INFORMATION**					
1	**Satisfaction**		**X**			
a	Job Satisfaction		29 Measures			
b	Profession Satisfaction		5-option range			
c	Facility Orientation Satisfaction		4-option range			
2	**Information Visible on Website**	**X** (optional - gender, ethnic background, foreign language fluency)		**X**		
3	**Mailing Address**				**X (optional)**	**X (street # & name, city, state, 9-digit zip)**
4	**Email Address**	**X**				
5	**Supervision of Unlicensed Personnel**		**X**			
6	**Types of Computerized Health Information Systems in Primary Position**		**6 options**			
7	**Experience with computer systems in Primary Position**		**5-option range**			
8	**Last 4 Digits of SSN**					**X**

NOTE: Items in cells are often summarized from multiple questions or paraphrased and should not be taken to be verbatim of original source.

Informed conversations on workforce issues, such as those outlined in the sidebar on page one, should rely on hard numbers but such information is surprisingly difficult to find. To date, policy makers have relied on regulatory boards, professional associations, and academic research centers. While important findings have come from these sources, each of them has limitations. Weaknesses include inconsistency across the professions, incompleteness, patchy accuracy, and staleness.

The most notable observation upon viewing the table is the variability among the professions, both in terms of process and in types of information collected. The California Medical Board's one-page survey of licensed doctors stands in stark contrast to the Board of Registered Nursing's 12-page sample survey. And despite a very high total number of questions asked (between the two boards, over 75 questions are posed), very few items could be compared. Many of the questions do not match; when they do, the answer options may differ significantly.

California SB 139 (Scott)

In 2007, legislation was passed to establish a Health Workforce Clearinghouse in California. Designed to be administered by the Office of Statewide Health Planning and Development (OSHPD), the new law paves the way for California to join several other states that can make informed policy decisions grounded on solid health workforce data.

Current California Efforts

Regulatory Boards

The regulatory bodies that oversee California's 30-plus regulated health professions all collect information about their licensees, primarily through an individual's application to be admitted to the profession. In addition, some of the regulatory boards collect information through re-licensing processes or through surveys of their licensees. Because applicants for licensure sign their applications under penalty of perjury, the data submitted tends to be of high quality and credibility.

However, the information collected is often very limited and not always updated regularly. Total counts of licensees do not always distinguish between full-time, part-time and retired professionals. It is also common for boards to collect mailing addresses of practitioners but not practice locations, making it difficult to count the number of practitioners providing care in any geographic region or the impact that changes to practice acts might have had on supply. In addition, the various regulatory boards do not always use the same categories or definitions, making comparisons across professions challenging. For example, policy makers cannot determine from licensing data how practice patterns of nurse practitioners compare to those of physician assistants or primary care physicians.

In 2003, the Medical Board of California started collecting basic practice information from doctors when they renew their licenses, which is required every two years. At renewal, physicians must affirm that they are in compliance with mandatory continuing education and other legal requirements to practice medicine. It is an opportune time for the board to update its records. Spurred by legislation,[1] a one-page survey instrument was developed through a collaborative process that included key stakeholders. The result has been a rich database of information and reports, particularly on demographic elements, such as race, ethnicity and foreign language competence. California's medical board survey offers licensees approximately 30 race/ethnicity options from which to choose and about the same number of languages. However, the survey is far from perfect. For instance, the geographic location of part-time work at a secondary site is not reported because only one practice site zip code is requested. Part-time work at community clinics or public health setting might not be captured because of this limitation

California's Board of Registered Nursing (BRN), which regulates registered nurses (RNs), does not regularly collect practice information on all of its licensees. Rather, it relies on comprehensive sample surveys of active and inactive RNs, conducted every two years. These surveys produce detailed data sets on many aspects of nursing practice. However, the surveys have shortcomings. Like medicine, only one principle practice site per practitioner is reported to the BRN. Additionally, California's advanced practice nurses such as nurse practitioners (NPs) and certified nurse midwives (CNMs) are regulated by the BRN as RNs but the practice patterns of these nurses are particularly hard to distinguish. Although the survey asks a question about certification as an NP, midwife, or other advanced practice nurse, no additional inquiry confirms that these RNs are actually practicing in specialized areas.

With the passage of AB 269 (Eng) in 2007, the California legislature mandated the collection of workforce data on dentists and "dental auxiliaries" (dental assistants and hygienists) when these practitioners renew their licenses. The language of the bill was modeled largely on the legislation regarding physician workforce data, which is a positive step in the direction of standards among California professions. However, the law has not yet been implemented so the actual survey instrument, data collection processes and any reports on the collected data remain to be seen.

Professional Associations

Non-governmental associations established to advocate for and advance the various professions may have demographic information about their members or the larger professional population and several associations publish regular "snapshots" of the workforce based on survey or other data collected. Similarly, several health workforce research centers across the US conduct

various studies, surveys and analyses of the health care professions. Such projects, often funded by private foundations or under contract with federal, state or private entities, result in numerous publications, including those in peer-reviewed medical and health care journals. Like the efforts of most state regulatory boards, however, reports from professional associations and independent research centers are imperfect. The reports of professional associations may be perceived as biased or self-serving and their results may be more applicable to their membership than to the whole profession. The work of independent research centers can suffer from alignment with often-changing interests of funding organizations and lack of standards across projects due to shifting funders, different questions for each project, and different amounts of funding leading to discrepancies in the depth of research that is conducted.

Efforts in Other States

Hawaii

In the state of Hawaii, the John A. Burns School of Medicine Area Health Education Center (AHEC) Program embarked upon an effort in 2006 to quantify the number of licensed health care providers on the main island of Hawaii and identify where providers are practicing.[2] Specifically, the program is collecting data on the following providers: osteopathic doctors (DO), emergency medical technicians (EMT-B and EMT-P), medical doctors (MD), physician assistants (PA), and podiatrists (DPM). The push was largely borne out of a perceived lack of access to care by Hawaiians, particularly in rural areas. The Hawaiian AHEC organization got involved after receiving increasing anecdotal reports that patients were having a difficult time finding providers that would accept them as new patients. AHEC subsequently discovered that there was no database including practice location.

In 2007, legislation was passed in the state creating a temporary health care task force under the Hawaii State Health Planning & Development Agency (SHPDA), which was charged with developing a strategic health plan for the island of Maui. As part of this legislation, AHEC was given an appropriation to coordinate with the SHPDA and continue their efforts with the database on a statewide level. Using ArcGIS, a geographic information system software program, the Hawaiian AHEC organization is building a database using data collected during biannual licensure renewal and insurance claims data from the three main insurers (not including Medicaid). Ultimately, a major goal of this project will be to help better understand and predict statewide supply and demand of health care providers.

North Carolina

The North Carolina Health Professions Data System's (HPDS) is unique in the United States.[3] It stands out as having 30 years of continuous, complete data on the state's licensed health care professionals. The system operates as a collaboration between

the Cecil G. Sheps Center for Health Services Research at the University of North Carolina at Chapel Hill (UNC-CH) and twelve state licensing bodies covering 19 health professions. Notably, the licensing boards provide data voluntarily to the HPDS on an annual basis. Although there is no legislation or other mandate requiring participation, most boards have been active partners over the years and several boards have sought inclusion in the collaboration in recent years.

The HPDS is a major undertaking with several product lines. Funding for the HPDS is provided by the North Carolina Area Health Education Center (AHEC) Program Office, data request fees, project cross-subsidies, and the UNC-CH Office of the Provost. The HPDS primary product line is maintenance of licensure data files. This activity cost just under $120,000 in fiscal year 2007-2008.

The North Carolina HPDS collects base data from initial licensure forms and updated data from renewals of licensure. Standard core data points are collected on all health professionals (see chart). In addition, several boards collect profession-specific data from their licensees. For example, additional data items collected from physicians, nurse practitioners and physician assistants include primary, secondary and other practice location; whether prenatal care and delivery of babies is provided; hospital privileges; and licenses ever held in other states and countries.

HPDS's comprehensive website offers county- and region-level data; historical trends; ratios and maps of practitioners per 10,000 population; publications, press releases and PowerPoint presentations; and data request instructions. The collected data have been provided to the legislature and other policy makers considering new schools of dentistry, pharmacy and optometry; the expansion of existing schools; and the effects of changes in license rules.

Texas

Many of the health professions regulatory boards in Texas had long collected data on their licensees and provided the information to the Texas Department of State Health Services (DSHS). However, not all boards participated and the data provided to the DSHS were often incomplete and inconsistent, making analyses difficult. In 2007, the legislature passed SB 29 to address these challenges. Under the new law, 21 health professions are subject to minimum data set reporting requirements.[4]

Key to the law's implementation is the role that TexasOnline will play. TexasOnline is a state-run information resource system through which individuals conduct various state business, such as renewing their driver's or professional licenses. As of March 2008, most health care professionals renewing their licenses through TexasOnline will submit the minimum data required.

In addition to being easy to use for the licensees, the TexasOnline approach reduces

the potential for human error in data entry. Because information will be in a standard format, data cleaning is minimal and cross-profession analyses and can be provided. The data can also be delivered electronically to the Department of State Health Services, Health Provider Resources Branch, on a daily basis, making the data set extremely current.

At present, the minimum data required is very limited. However, additional optional data can be asked of licensees and ad hoc questions can be included in the renewal forms by the DSHS with relative ease.

Florida

The impetus for mandatory health workforce data collection in Florida arose several years ago amidst perceived physician shortages and calls for new medical schools. Although outstanding efforts were made to analyze physician supply and demand, hard data were extremely limited or non-existent. The decision to start a new state-administered medical school was made by the legislature but the process highlighted the need for better data.[5]

After a couple of failed attempts to collect data on all health care professionals, legislation was passed in 2007 mandating physician workforce data collection. Under the new law, the Florida Department of Health will monitor physician supply and demand in the state. The bill's legislative intent specifically notes that "items to consider relative to assessing the physician workforce may include physician practice status; specialty mix; geographic distribution; demographic considerations; and needs of current or projected medically underserved areas in the state."[6]

As implemented, the survey that goes to physicians who are renewing their licenses has twelve questions that apply to all physicians. Short sets of additional questions are requested from on-call specialists taking emergency call, doctors providing radiological services, and doctors providing obstetrical services. While both online and paper options are available, the paper option likely will be phased out soon because it costs the Department an estimated additional $7 per person.

Other States

The four states highlighted above are by no means an exclusive list but are meant to be examples with interesting aspects that could be replicated elsewhere. During this project's research phase, several additional states were identified as having health workforce data collection efforts in place. These include New York (where the State Education Department conducts the surveys and provides the results to the State University of New York Center for Health Workforce Studies for analysis);[7] South Dakota (where the Department of Health, which oversees all the regulatory boards, has requested submission of workforce data into a central office for analysis);[8] and Michigan (where the Michigan Healthcare Workforce Center was

established in 2005 as a collaboration among several state departments).[8]

Discussion

In reviewing the chart and approaches that other states have taken, several common concerns and questions can be discerned. These are discussed below.

What information should be collected?

An endless list of questions and data points could be collected from health care professionals but a dozen questions could cover the critical material. Some of the most relevant information, from a policy maker's perspective would include basic demographics, hours per week providing care, practice location, and specialty.

Basic demographics include age or year of graduation (which can provide the basis for proxy of years expected in the workforce), gender and race or ethnicity. Answers to these questions are unlikely to change over time and need be asked only once. To address the concern that has been raised by some professions about potential lawsuits by licensure candidates claiming unfair discrimination, demographic information could be shielded from boards until after licensure or collected after licensure had been granted.

One of the most pressing questions lawmakers and educators have is where health care professionals are practicing. In addition to licensee mailing addresses, practice site locations are critical. Geographic details could be at the street address, zip code or county level. All practice settings could be queried so hours of care regularly provided at community clinics and other part-time sites could be captured. For several professions, particularly medicine, the specialty area of practice (e.g. obstetrics, neurology or pediatrics) and Medicaid or Medicare participation are additional data points needed for estimates of supply to be accurate. Depending on population profiles, some states might want to query licensees on items such as foreign language fluency and race or ethnicity.

Several choices are available to address interest in various aspects of professional practice without overburdening licensees. A strong case can be made for a government role in workforce research that is limited to crucial aspects of access and public protection. One option would be to have a set of core questions that are asked of all licensees and an additional set of questions for members of some specialties. Another option would be to ask core questions of all licensees (like the US Census short form) and a longer set of questions to a rotating sample of practitioners. Policy for adding and changing questions to surveys should be adopted ahead of time.

How should information be collected and managed?

In most states, the regulatory boards collect initial information from professionals at

licensure and additional information at regular renewal periods. This process puts them in a good position to collect workforce data regularly as the systems are already in place. Many states are moving to online application and renewal processes, which are faster, less expensive and less likely to be vulnerable to human data entry error. As noted in the case studies of states that have moved to systematic data collection processes, standard questions and answer options make data clean-up and analysis significantly easier. Data collection standards permit time trend analysis and inter-professional comparisons. As described above, Texas has moved to a unique method that other states might try. A central website that permits everything from renewing state driver's licenses to professional licenses collects health workforce data on a daily basis and transmits it to the state department of health for management and reporting.

What impact can workforce data have on policies and health care?

In the states that have solid health workforce data systems in place, policy makers have relied on the data in considering, for example, new medical or other health professions schools; loan repayment programs to encourage professionals to practice in underserved areas; and hospital employment trends.

How much does workforce data collection cost?

Costs to collect health workforce data vary by number of professionals regulated and by system the state employs. States and boards that have implemented data collection processes tied to re-licensure have found costs to be relatively low (often under $1) per licensee per year. North Carolina's Health Professions Data System spends under $120,000 annually to manage the data from 12 boards covering 19 professions and over 140,000 licensed individuals.[9]

Should board participation in data collection be mandated or voluntary?

Based on the experiences of several states to date, there is no single approach to guarantee participation. North Carolina has been extremely successful with a voluntary approach. Other states have found legislation necessary to ensure participation. On a related issue, both voluntary and mandated models can be used as frameworks to either 1) start small with one or a few professions and expand gradually or 2) to initiate a comprehensive program that includes all regulated health professions from day one.

How accessible should data be to researchers and policymakers?

Although the data being collected are not of a particularly private or confidential nature, it is generally acknowledged that such data are useful in aggregate formats to inform policy. To reduce the risks of data being released about individual licensees, it is worth spending some time establishing policies regarding access to data by researchers and policy makers. Because licensee data could be considered public, and because data

could potentially be linked back to an individual through a license number, a public records exemption might be appropriate. In addition, the entity responsible for managing the data might spend some time developing policy governing data requests that are modeled after academic and governmental institutional review boards (IRB) or independent ethics committees. Under such guidelines, researchers and policy analysts would petition the department for access, complete IRB review, and only receive de-identified data.

Summary of Promising Approaches

An analysis of the data collection efforts undertaken to date provides us with a handful of takeaway lessons. Most promising and successful approaches are simple, short, in standard format, conducted online, and coordinated.

- **Short** – A one-page questionnaire should be able to capture necessary information while not burdening respondents or costing too much.
- **Simple** – A few key data points should be priorities. These include number of hours providing patient care, geographic site of practice settings (as compared to mailing address), and specialty practice area. Second tier priority areas might include Medicaid and Medicare participation and foreign language fluency.
- **Standard** – Minimal investments of time and effort prior to data collection to agree on standard questions and answer formats save considerable time, money and energy later. Standard data are not only relevant but necessary for time trends within a single profession or comparisons across professions.
- **Electronic** – Online data collection and management can be considerably more efficient and have fewer human errors than hard copy and handwritten formats.
- **Coordinated** – Individual boards maintain direct communication with licensees and are well-positioned to include a short workforce survey with re-licensing materials. This link between collected practice data and an individual license is critical for accurate distributions, ratios and mapping. However, a central and objective agency or organization can provide optimal management services for numerous boards. De-identified data could then be made available back to the boards, policy makers and researchers for analysis.

Conclusion

As policy makers, educators and health care professionals ask increasingly sophisticated questions about the health care workforce – and the interconnections between workforce and supply, demand, cost, quality and access – they will need increasingly sophisticated data sets and analyses to make informed decisions. Several states have experimented and been successful in implementing solid data collection efforts that meet the data needs without overburdening licensees or

boards' administrative capacity. California is poised to initiate its own system and can benefit from the lessons learned and successful models in the well-established programs elsewhere. The goal of an active and collaborative health workforce clearinghouse holds great promise for California.

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