

**REPORT TO THE  
DELAWARE HEALTH CARE COMMISSION**

**HEALTH CARE WORKFORCE AND  
RELATED HEALTH CARE REFORM PERSPECTIVES**

Respectfully submitted,  
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## INTRODUCTION

The State of Delaware seeks to support the health care needs of the state's population. As part of its efforts, led by the Delaware Health Care Commission (DHCC), the State wishes to develop an appropriate supply of health care providers to assure access to care. Primary among its health care workforce interests is the supply of physicians, especially primary care physicians.

In that regard, the State operates several programs that are intended to improve recruitment and retention of physicians and others and to achieve access to medical school training and dental school training. Those programs include the State Loan Repayment Program (SLRP), the Delaware Institute of Medical Education and Research (DIMER), and the Delaware Institute for Dental Education and Research (DIDER).

This report provides information on health care workforce recruitment issues, related health care reform issues, and alternative strategies to support optimal workforce supply for access to health care. In addition, the programs of other states to address issues associated with not having an in-state medical school or in-state dental school are presented. In a separate part of this project, the Commission has authorized the gathering of information regarding the health care professionals in the SLRP, DIMER, and DIDER programs and assessment of the effects on the health care workforce supply.

This report is organized as follows: (1) an overall summary, (2) summaries of selected individual studies and reports, and (3) an Appendix with the full text of several of those studies and reports.

## OVERALL SUMMARY

### Shortages

Shortages in the supply health care workforce exist across the nation in nearly every state. Physician workforce supply is the most studied; however, many studies exist on shortages in other health care professions including nurses, pharmacists, dentists, therapists, technicians, and support staff. Of the most concern in the studies is the supply of primary care providers and the supply of providers in rural areas. Shortages and maldistribution are documented in many medical specialties also. Of particular use in understanding the scope of physician shortages is the Association of American Medical Colleges (AAMC) summary of such reports and studies across the nation in the publication "Recent Studies and Reports on Physician Shortages in the U.S." Their compilation is summarized in this report.

The shortages are expected to increase due to multiple factors, especially in primary care: population growth, the aging of the population, increasing chronic conditions, increasing cultural diversity, and increased demand associated with health care

reform changes (Affordable Care Act) such as increased insurance coverage, improved prevention strategies, and evolved models of care such as those associated with accountable care organizations and the medical home model.

According to the AAMC, Delaware ranks 14<sup>th</sup> highest in the nation in the overall number of physicians per 100,000 population with 268.4. With 233.2 physicians in active patient care per 100,000 population, it ranks 14<sup>th</sup>. Delaware has 95.6 primary care physicians per 100,000 population, ranking 18<sup>th</sup>. Finally, it ranks 20<sup>th</sup> highest in the nation with 84.7 active primary care physicians per 100,000 population.

### Recruitment Strategies

There are many strategies used by the federal government, state governments, professional societies, employers, the military, etc. to enhance the effectiveness of recruitment of individual health care providers, particularly to address shortages in rural and underserved communities. When a debt relief strategy is used, it is usually provided in exchange for service and it is usually for a minimum of two years. The strategies include:

- Loans to providers in training in exchange for service upon completion of training
- Loan repayments for providers who have completed training in exchange for service
- Scholarships for training (with and without requirements for service)
- Stipends for living expenses during training (with and without requirements for service)
- H-1 Visa sponsorship
- J-1 Visa waiver
- Sign-on bonuses
- Income guarantees
- Relocation allowances
- Spouse/partner job transition support
- Career development opportunities
- Continuing medical education support
- Practice start-up support (capital expenses and operating expenses)

The most common strategy used is loan repayment/scholarship/forgiveness programs. The AAMC lists 81 such programs for physicians, provided by federal agencies, states, and other entities. Funding of the various programs is by the federal government, states, and joint federal-state funding. The University of Albany reports that there are 38 state-sponsored loan repayment/scholarship programs for non-physician health care providers. (See individual reports in the body of this report.)

Broader level efforts to increase the supply of physicians reported by the AAMC include:

- Increasing the number of state subsidized medical school seats in other states (by states without a medical school or with a small number of medical schools relative to the population)
- Increasing the number of residency positions in the state
- Removing the cap on GME positions (federal funding)
- Establishing or expanding loan repayment assistance programs in exchange for physicians practicing in the state
- Establishment of one or more new medical schools
- Increasing the class sizes at existing medical schools
- Establishing regional campus(es) for existing medical schools
- Offering other incentives for practice in underserved areas or for specialized populations
- New models of care
- Improved compensation/reimbursement for practice in underserved areas

The University of Albany reports the following state efforts to address shortages of non-physician providers (number of states):

Task Force, Commission or Panel	44
Scholarships, Loan Repayment	38
Career Ladder Development	14
Health Career Marketing	25
Labor Department/Workforce Investment Board	7
Job Design	5
Workforce Data Collection	27

### Effectiveness of Recruitment Strategies/Reasons for Decreased Retention

There have been several studies, reports, and surveys on the effectiveness of recruitment programs and on reasons for poor retention. Summaries of selected studies are below in this report and full copies of several are in the Appendix of this report. The significant conclusions, with parenthetical note of the study organization(s) or author, are:

- Physicians who attend high school in a state (i.e., were previous residents of the state) and medical school in that state are most likely to practice in that state. (Albany; AAMC)
- The strongest recruitment incentive by far was income guarantees, followed by career development; all other factors, including educational loan repayment, were considerably less effective as incentives. (Albany)
- The strongest reasons for not staying in a state after completing training there were better pay, perceived better jobs, cost of living/taxes, and proximity to family in another location. (Albany)
- Multi-factorial recruitment programs, that is, combinations of financial incentives, family considerations, lifestyle considerations, community support/culture, etc.

were more effective than financial considerations alone. (Shannon; Sempowski; Jutzi; Hancock)

- Recruitment of rural-raised and community-oriented individuals was more effective for rural locations. (Hancock)
- Physicians who voluntarily choose a rural community in which to practice are far more likely to stay than those who located there as a “return of service” commitment. (Sempowski)
- “Return of service” programs for rural and underserved areas generally achieve their primary recruitment goal in the short term, but have less success in the long term. (Sempowski)
- One medical school program and one interstate program where the medical training and graduate medical training emphasize primary care have had significantly positive effect on recruitment and retention to practicing primary care in rural/underserved areas. (Rabinowitz; WWAMI)
- Financial incentive programs have placed substantial numbers of health workers in underserved areas. 71% of incentive recipients fulfilled their service obligation. Incentive program participants are more likely than non-participants to work in underserved areas in the long run, though they are less likely to remain at the original placement location. (Conflicts with Sempowski article.) (Barnighausen)

#### Workforce Supply with the ACA Health Care Reform Law:

The Center for the Health Professions at the University of California at San Francisco (UCSF) has prepared what may be the most comprehensive report on health care workforce readiness in the era of health care reform with the Affordable Care Act (ACA). The basic theme of the report is that policy and program management should go beyond simply the supply of providers – that is, it is more than just the number of practitioners. A more effective approach will be more comprehensive and will consider all aspects of the health care system including its structure, financing, technology, care models, provider training, practice scope, and long term planning.

Policy suggestions aimed to meet the expected increase in demand associated with the ACA and general demand increase factors include the following:

- “Because professionals tend to practice where they train, increasing training and residency opportunities in under-represented fields and communities is a good investment.
- Expand loan repayment programs for practicing in underserved areas and for high-need professions.
- Enhance telehealth to improve communications between clinicians and patients, and between clinicians, particularly in remote areas.
- Strengthen the capacity of safety net providers who serve under-represented patient populations.
- Expand the legal scopes of practice for select professions such as nurse practitioners and physician assistants.

- Invest in training and health information technology that would allow the safe delegation of tasks to clinical support staff in team-based models.
- Develop financing models that mitigate income differences between primary and specialist providers and that reward patient outcomes-based services by teams of providers.
- Improve, standardize, and streamline workforce data collection and availability to enhance regional and statewide planning.
- Promote ongoing statewide and regional partnerships for health workforce planning. Adequate responses to changes in demand can only be met through coordinated planning efforts beyond the level of individual organizations or communities.”<sup>1</sup>

The report makes the following policy suggestions for meeting the demand related to the educational pipeline,

- “Increasing the number of primary care physicians is an important, but long-term goal that cannot be achieved fast enough to meet the upcoming increase in demand. However, investing in strategies to encourage medical students to practice in primary care is an important step.
- Refocus some education resources on professions such as nurse practitioner and physician assistant, which require less training time than medical school and could help meet some of the more immediate demand for primary care providers. [For the expanded use of nurse practitioners and physician assistants to be successful, public and private payers must support their services with appropriate fee payments.]
- Promoting and supporting innovations in California’s community colleges to increase completion of health professions programs and enhance retention of historically underrepresented students would also help increase diversity and meet workforce demands.
- Investing more equitably in primary and secondary (K-12) education programs would help prepare a more diverse group of students to enter the health professions in the first place.”<sup>2</sup>

In addition, in the full report, the participant individuals and organizations involved in developing the UCSF report made comments on aspects of the ACA that the most potential to support meeting the increasing demand. Excerpts<sup>3</sup> follow:

“While ... there is a shortage of primary care physicians, and ... the ACA [will] result in increased demand on primary care clinicians, increasing the number

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<sup>1</sup> “California’s Health Care Workforce – Are We Ready for the ACA?” (Research Brief) by Tim Bates, Lisel Blash, Susan Chapman, Catherine Dower, and Edward O’Neil, Center for the Health Professions, University of California at San Francisco, December 1, 2011.

<sup>2</sup> Ibid.

<sup>3</sup> “California’s Health Care Workforce: Readiness for the ACA Era” (Full Report) by Tim Bates, Lisel Blash, Susan Chapman, Catherine Dower, and Edward O’Neil, Center for the Health Professions, University of California at San Francisco, December 1, 2011.

of primary care physicians was seen as a long term solution incapable of meeting the increase in demand projected by 2014.

“Other types of providers [should] be developed to address these demands. While about 32 percent of physicians and one-third of physician’s assistants enter into primary care (pediatrics, family medicine and internal medicine), 65 percent of nurse practitioners do so. ...

“Because the number of providers, including culturally and linguistically competent providers, is unlikely to increase fast enough to meet demand, redesigning practice models so that providers can delegate tasks to other health care professionals — such as nurses, community health workers, and medical assistants — holds promise. ...

“The ability to delegate tasks is reliant not only upon changing practice models, but on enhancing health information technology, and restructuring reimbursement. ...

“... primarily nurse-managed centers [have] potential to address primary care physician shortages

“... new financing and delivery models have greater potential for addressing the increase in demand. These include the patient-centered medical home model of care (PCMH) and accountable care organizations (ACOs). ...

“Find ways to use HIT [health information technology] to stretch the health care workforce--Address the need for a workforce competent in health information technology that is capable of implementing, using, and maintaining electronic health records (EHRs) and telemedicine. ...

“Improve data integration across systems so that information can be shared safely and efficiently between labs, hospitals, community health centers, and medical office practices.

“Enhance telehealth so that primary care physicians in remote sites can access specialists and non-physician providers can provide care in remote sites and access primary care physicians. ...

“Invest in training to develop multidisciplinary teams. Place more emphasis on teambuilding and communication in health professions training. ...

“Invest in nurse practitioner and physician assistant training programs, and increase the number of slots available for training NPs and PAs. Both of these professions are easier to scale up and require less time in training than primary care physicians. ...

“Reform nurse training away from a hospital-based focus towards a community health-based focus. Create more roles for RN care managers and chronic disease managers to support the 10 percent of patients that incur 70 percent of health care costs. ...

“Train for positions like community health worker, promotorás and health educator that can facilitate a link between clinical care delivery and population health. ...

“Expanding loan repayment programs like the National Health Service Corps to registered nurses working in expanded roles (care manager) in primary care, and to professional counselors, social workers and psychologists working in community clinics ...

“Develop better partnerships between Community Health Centers (CHCs) and hospitals. ...

“Enhance Community Health Center electronic health record (EHR) capacity ...

“Develop practice models that include an interdisciplinary team working together to provide patient care. Require all clinical staff to work at the top of their license. In a clinic or other primary care setting, staff such as care managers, promotorás, health coaches, nurses, medical assistants, community health workers, and others can be trained to take on much of the planning, screening, health education, panel management, community linkages and follow-up to lighten the burden on the primary care providers. ...

“Changes to reimbursement structures that pay for value, rather than volume, and emphasize prevention, are expected to improve health outcomes and contain costs in the long run by decreasing emergency room visits and hospitalization. Reimbursement structures that cover preventive services provided by nurses, medical assistants, patient navigators, care coordinators, and other clinical support staff are vital to implementing new practice models. ...

“Encourage patient engagement and self-management through renewed emphasis on prevention. Utilize telehealth, patient portals and other HIT resources to provide greater access to health information, and new staffing models to encourage patient participation.”

### Medical School

As noted above, physicians are more likely to locate in the state where they are from, where they attended medical school, and where they received their graduate

medical education. The fact that Delaware does not have an in-state medical school (or dental school) therefore limits one avenue of attracting physicians to establish practice in the state. The other four states that do not have a medical school (Alaska, Idaho, Montana, and Wyoming) have developed a successful strategy to provide access to medical training for their citizens and to increase the supply of primary care physicians and graduate medical education (GME) in their states by joining together with the University of Washington School of Medicine (UWSOM) in a program called WWAMI (an acronym composed of the first letters of the five participating states).

In the WWAMI participating states other than Washington, each state has a specific number of medical school slots at UWSOM and tuition is paid for by a combination of appropriated state funds and student tuition. The students spend their first year of training at their home state university, their second year at UWSOM in Seattle, and their third and fourth year required and elective clerkships throughout the WWAMI states. GME is not required to be in the WWAMI states, but a majority of the students do so. Over the past thirty years, over 60% of the graduates have remained in the WWAMI states to practice; over the past twenty years, approximately 50% have selected primary care specialties; and an estimated 20% practice in Health Professional Shortage Areas (HPSAs). The program is described as extremely cost-effective for the participating states and extremely effective in addressing supply and distribution issues.

If the WWAMI program appears to be of possible interest for Delaware as a model to address physician workforce issues, consideration might best be coordinated with the programs of the Delaware Health Science Alliance and its membership organizations.

See the “Interstate Agreements for Medical School Training” report below as well as a journal article in the Appendix of this report for more details.

### Dental School

As with medical training, there is no in-state dental school in Delaware. This is less unique than the medical school situation; there are fourteen other states that do not have dental schools. Eighteen dental schools in thirteen states participate in some form of an interstate agreement for residents of other states to receive training. The arrangements vary widely in formality from formal interstate agreements to collegial arrangements based on historic relationships.

The arrangements appear to exist not to address workforce shortage issues, but rather the costs of attending dental school. The agreements primarily provide enhanced access to admission and provide for tuition fees at in-state rates in order to address the financial disadvantage of students in the states without dental schools who must attend an out-of-state school. The funding is generally achieved from state

appropriations or reciprocities between the educational institutions. One example is the arrangement between Missouri and Kansas discussed in this report.

Such an arrangement in Delaware could improve access to dental training and the cost of that training for Delaware residents, but would not directly affect the dental workforce supply issue or the aspects of it related to the dental residency requirement or the proficiency testing requirement.

See the “Interstate Agreements for Dental School Training” report below for more details.

## CONCLUSION

The Delaware Health Care Commission’s efforts to develop an adequate supply of health care providers in order to assure access to care for the population of the state is appropriate and timely. The shortage of health care providers is real in Delaware and across the nation. It is particularly evident in the supply of primary care providers in rural and other underserved areas. It also exists in many if not most medical specialties. Simply stated, demand/need exceeds supply. A separate study for the Commission by Ms. Marjorie Shannon provides specifics of the shortages by professional discipline and by geographic area of the State.

Various reports and studies predict the shortage to worsen. In general, supply is increasing at a slower rate than demand/need. On the supply side, new medical schools are being built, but none in Delaware or the Delaware region. Nursing schools in the State are at capacity and report that they struggle to hire qualified faculty and obtain an adequate supply of clinical training sites. On the demand/need side, contributing to the increase is the overall growth of the population, particularly in the underserved areas of the state; the aging of the population, wherein the elderly on average require more health care services; increasing cultural diversity of the State; and, very importantly, the Affordable Care Act which will greatly increase the number of persons who have health care insurance coverage and increase the demand/need for preventive and primary care.

In recent years, the most commonly used strategies to recruit health care providers have revolved around economic factors. This is only logical given many of the financial realities for new providers in the health care industry:

- Health care providers are coming out of their professional training with increasingly heavy student loan debt.
- The cost of setting up, starting up, and operating a health care practice is very substantial and is increasing, presenting a significant challenge for a new provider to meet.
- Payment rates by governmental and private insurers are increasingly constrained. In particular, payment rates by Medicaid programs, the predominant

insurer in the underserved areas and for the underserved populations are significantly lower.

- At the top end of the health care professions (physicians and dentists), the professionals have a career expectation of making a good income and having a comfortable lifestyle.
- Income for primary care professionals, the providers most in need in the underserved areas, generally is lower than for specialists.
- Salary levels in the organizations that most serve the population in rural and underserved areas, such as community health centers and federally qualified health centers, tend to be lower than in larger organizations or organizations in urban areas.

Available reports and studies indicate that organizations use multiple incentives to recruit providers. Given the above financial realities for newly trained providers, incentives associated with higher salaries, guaranteed starting incomes, and career ladders have been the most effective. Loan repayment/forgiveness programs have some recruitment effectiveness, but considerably less than higher direct income.

Studies show mixed long term effectiveness for loan repayment/forgiveness programs. Over 70% of service commitments are met, but long-term commitment after completion of the required service is less strong. This is especially so when the loan repayment/forgiveness is the only strategy. The underserved areas tend to present practice and lifestyle limitations that mitigate the interest in serving the populations at need. These include fewer employment options for spouses/partners, less desirable schools, less cultural engagement opportunities, etc. Loan repayment/forgiveness programs tend to be more successful when they are coupled with community engagement efforts to meet perceived limitations in the underserved areas.

Another aspect of the loan repayment/forgiveness programs is that, according to the AAMC, there are 81 such programs in the nation. But it is a zero sum game. The many programs simply end up competing against each other, but the number of providers does not increase simply because of them. Any given state cannot be without a loan repayment/forgiveness program and thereby be at a disadvantage relative to the other states. However, having a program only puts that state on the same playing field with the others. No net gain is achieved overall. The only way for one loan repayment/forgiveness program to have an advantage over the other 80 such programs would be to have higher debt amounts covered or a faster “payoff”, both of which potentially diminishes the service commitment.

So, how can the demand/need be met? If the states are all competing for the limited current supply, what must Delaware do? In the short term, the State should likely best maintain use of the State Loan Repayment Program, but consider managing the program in a more comprehensive manner with a full, active recruitment initiative. The program should:

- Be a formal State program with dedicated staff and funding
- Work actively with eligible organizations and practices in underserved areas to assure understanding of the program and its processes and support their use of the program
- Market the program generally to regional medical schools
- Market the program specifically to individuals during their third and fourth years of medical school and to those in GME in the State
- Market the program specifically to individuals from Delaware and to individuals who have expressed interest in primary care and in serving underserved populations

In order to enhance the likelihood of a successful long term commitment, the program should support the practice locations in providing professional support (continuing medical education opportunities and access to specialist consultation) and personal lifestyle and community engagement support (employment for spouses/partners, obtaining housing, connection to the local community and schools).

In the long run, the State should consider a more comprehensive approach – to rethink how the supply of providers is considered. This can consider new practice, financing, and staffing models, expanded and coordinated professional roles, technology, etc., including many of the initiatives discussed in the UCSF report. In addition, determining the most effective and appropriate strategies should include a well-studied determination of current and long-term demand/need, especially with changes associated with the ACA. Primary strategies should include:

- Increase training and residency programs in under-represented fields and in underserved communities.
- Expand the legal scope of practice for selected professions, especially nurse practitioners and physician assistants – not just have providers practicing at the top of their license, but at the top of their ability by expanding the legal professional practice code to match that professional ability
- Assure that public and private payers pay for the expanded practice services of the nurse practitioners and physician assistants.
- Expand loan repayment programs.
- Enhance telehealth capabilities and health information sharing technologies.
- Develop models of financing that mitigate income differences between primary care and specialist providers
- Develop models of financing that reward outcomes of care rather than volumes of care

In addition, the State and private health care organizations in the State should consider a broader definition of “access” to health care services. While increasing the supply of providers will certainly be needed, access can also be improved with attention to time availability, geographic and transportation availability, cultural availability, inter-provider transitional coordination, communication, and, very

importantly, patient engagement. In those regards, providers and provider organizations should:

- Provide services outside the Monday-Friday, 8 a.m. to 5 p.m. time period so that patients can receive services without having to take time off of work and thereby potentially endangering employment or decreasing income or, for children, to miss school.
- Locate services as conveniently near population clusters as possible on major thoroughfares and collaborate on public or public private transportation to enable individuals and families without access to personal transportation to travel to provider sites.
- Enable all providers to be culturally accessible for language and culturally sensitive to issues of religion and legal challenges.
- Assure effective transitions of patients and coordination of care with clear inter-professional and inter-organizational systems of communication through health information technology and formal systems of handoffs to avoid patients “falling through the cracks”.
- Develop programs for patient education and engagement at the preventive care level and primary care level to increase the individual’s responsibility for their own health, especially those with chronic disease or are developing pre-disease issues.

Eventually, Delaware must address its situation of not having a medical school and not having any GME opportunities in many of the areas of workforce shortage. DIMER is effective in providing access to medical school training for Delaware residents. It is less effective at returning Delaware residents to practice in the state than might otherwise be attainable if a medical school and more GME was available in the state.

That does not necessarily mean that a completely new medical school should be built. As the collaborative programs of the Delaware Health Sciences Alliance are developed, consideration can be given to having an increased supply of physicians being a specific goal.

It is frequently stated that Jefferson Medical College at Thomas Jefferson University is Delaware’s medical school. Through the Alliance, the school can help address the shortage, possibly in ways modeled by the WWAMI interstate arrangements where first year classes are held in the home state, second year classes are held at the main medical school campus (TJU), third and fourth year experiences take place in the home state. The development of additional graduate medical education experiences in those hospitals that currently have residencies and fellowships and in hospitals and other health care organizations in the state that do not have GME programs would complete that structure that has been effective for the WWAMI home states in increasing physicians choosing to set up practices there, especially in primary care.

DIDER has been somewhat marginally effective in increasing access to dental school training for Delaware residents. As a recruiting mechanism to encourage dentists to set up practice in Delaware, especially underserved areas, it has been ineffective. The unusual requirement of a dental residency and a proficiency examination present an economic and practical barrier to entry into the Delaware market. An individual completing dental school training, very likely with significant educational debt, who is bright and competent and with an interest in caring for the populations of underserved areas has a choice of beginning his/her career in another state and being able to start earning income and paying off their debt immediately or deferring practice for the time of the residency. No evidence has been found that dental care in states that do not have these requirements is of lesser quality or efficacy. Delaware can decide how these requirements compare with its desire to improve access to care.

In summary, the health care workforce supply shortages are real and will likely worsen. However, the solutions are not just to try to be more effective than other states in recruiting a set number of providers – a “zero sum” game. The solutions require a comprehensive approach that encompasses the whole health care system including changes in provider supply channels, financing, technology, care models, provider training, practice scope, facility/provider access availabilities, and long term planning. Many of those changes are described in this report. A loan repayment program is needed – Delaware cannot be without a loan repayment program while other states have them. However, by itself, it cannot solve the problem. The comprehensive strategy that is needed is quite achievable with the collective efforts and will of the State, private health care and educational institutions, and leaders around the State.

## REPORT/STUDY SUMMARIES

The report/study summaries listed below follow:

### Reports

1. Center for Health Workforce Studies, School of Public Health, University at Albany, State University of New York
2. New York State Council on Graduate Medical Education
3. Center for the Health Professions, University of California at San Francisco
4. Association of American Medical College
5. Other Studies and Reports
6. Interstate Agreements for Medical School Training
7. Interstate Agreements for Dental School Training
8. Contacts with the U.S. Department of Health and Human Services
9. 3RNet
10. Appendix

**CENTER FOR HEALTH WORKFORCE STUDIES, SCHOOL OF PUBLIC HEALTH,  
UNIVERSITY AT ALBANY, STATE UNIVERSITY OF NEW YORK<sup>4</sup>**

The Center for Health Workforce Studies is a not-for-profit research organization whose stated mission is to provide timely, accurate data and conduct policy-relevant research about the health workforce. The Center's work assists health, professional, and education organizations; policy makers and planners; and other stakeholders to understand issues related to the supply, demand, distribution, and use of health workers, with emphasis on the State of New York. The Center is currently conducting a project to identify what health care workforce data the various states have now and/or are collecting.

Center Director, Jean Moore, believes that it is important to recognize that there is not just one recruitment solution. Multiple approaches are needed and appropriate. She also noted the importance of looking at demand, not just supply.

Several of their recent studies are relevant to the DHCC interest in health care workforce recruitment and retention and are summarized here. Copies of the full reports are in the Appendix of this report. A complete list of the Center's studies is provided at <http://chws.albany.edu/index.php?reports>.

Study 1: "Retention of New Physicians after Completing Training in New York in 2010" by David P. Armstrong, Gaetano J. Forte, and Jean Moore, Center for Health Workforce Studies, School of Public Health, University at Albany, State University of New York, December 2010.

Study Findings:

Physicians who attended medical school and high school in the state (i.e., were previous residents of the state) were most likely to practice in the state at 77%. Of the physicians who attended medical school in the state, but not high school, 54% practiced in the state.

<u>Most Influential Recruitment Incentive Received for Accepting a Job Offer, by Practice Location, 2010</u>			
<u>Incentives</u>	<u>Staying in NY</u>	<u>Leaving NY</u>	<u>All</u>
H-1 visa sponsorship	6%	16%	12%
J-1 visa waiver	2%	9%	6%
Sign-on bonus	2%	3%	2%
Income guarantees	44%	38%	40%
On-call payments	1%	1%	1%

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<sup>4</sup> <http://chws.albany.edu>

Relocation allowances	0%	1%	1%
Spouse/partner job transition	2%	3%	2%
Support for CME	3%	2%	2%
Career development opportunities	27%	17%	21%
Educational loan repayment	5%	3%	4%
Other	8%	9%	8%
Total	100%	100%	100%

<u>Reasons for Leaving New York After Completion of Residency/Fellowship, 2010</u>		
<u>Reasons</u>	<u>All Reasons</u>	<u>Main Reason</u>
Overall lack of jobs in NY	26%	7%
Better jobs in desired location outside NY	49%	12%
Better jobs in desired practice setting outside NY	36%	8%
Better jobs outside NY that meet visa requirements	16%	9%
Better salary offered outside NY	53%	10%
Cost of malpractice insurance in NY	19%	1%
Cost of starting a practice in NY	14%	0%
Taxes in NY	34%	2%
Cost of living in NY	49%	4%
Proximity to family	46%	31%
Better job for spouse/partner outside NY	20%	5%
Climate/weather in NY	28%	2%
Never intended to practice in NY	20%	5%
Other reason	5%	4%
Total	N/A	100%

Study 2: “Fewer New Physicians Choose Community-based Primary Care” by David P. Armstrong, Gaetano J. Forte, and Jean Moore, Center for Health Workforce Studies, School of Public Health, University at Albany, State University of New York, October 2011.

Study Findings: At the same time that demand for newly trained primary care physicians is increasing and has surpassed the demand for specialists, in-state retention of those physicians declined. In addition, general internal medicine residents were increasingly working in hospital practice settings (59%) rather than community-based settings (37%), suggesting that internal medicine trainees are less likely to be a source of meeting primary care physician workforce demand relative to other primary care specialists.

Study 3: “Retention of New Physicians after Completing Training in New York” David P. Armstrong, Gaetano J. Forte, and Jean Moore, Center for Health Workforce Studies, School of Public Health, University at Albany, State University of New York, June 2012.

Study Findings: Similar to Study 1 above, attendance at in-state medical school and high school correlated most highly with staying in-state to practice (79%) and in-state medical school alone staying 53%. Recruitment and reasons for leaving were reported as follows.

<u>Most Influential Recruitment Incentive by Practice Location, 2011</u>			
<u>Incentives</u>	<u>Staying in NY</u>	<u>Leaving NY</u>	<u>All</u>
Income guarantees	36%	35%	36%
Career development opportunities	37%	22%	28%
H-1 visa sponsorship	7%	15%	12%
J-1 visa waiver	4%	9%	8%
Spouse/partner job transition	2%	4%	3%
Educational loan repayment	2%	3%	2%
Sign-on bonus	2%	3%	2%
Support for CME	2%	1%	2%
Relocation allowances	0%	2%	1%
On-call payments	2%	0%	1%

<u>Reasons for Leaving New York After Completing Training, 2011</u>		
<u>Reasons</u>	<u>All Reasons</u>	<u>Main Reason</u>
Proximity to family	45%	29%
Better salary offered outside NY	60%	12%
Better jobs in desired location outside NY	56%	11%
Overall lack of jobs in NY	31%	10%
Better jobs in desired location outside NY	40%	8%
Better jobs outside NY that meet visa requirements	18%	8%
Better job for spouse/partner outside NY	23%	5%
Never intended to practice in NY	18%	5%
Cost of living in NY	50%	3%

Study 4: “Rural and Urban Physicians in New York” by David P. Armstrong, Gaetano J. Forte, and Jean Moore, Center for Health Workforce Studies, School of Public Health, University at Albany, State University of New York, July 2012.

Study Findings:

- The supply of physicians per 100,000 population is more than twice as high in urban counties as in rural counties.
- Physicians practicing in rural counties are more likely to be male and non-Hispanic compared to physicians practicing in urban counties.
- Physicians in urban counties are much more likely to have completed a NY residency program than physicians in rural counties.
- Rural-raised physicians are more likely to practice primary care compared to urban physicians.

Physician Characteristics by Geographic Location, 2010

<u>Characteristic</u>	<u>Rural</u>	<u>Urban</u>
Male	76%	67%
Non-Hispanic White	76%	68%
NY High School	44%	49%
NY Medical School	34%	39%
NY Residency	54%	79%

<u>Use of Electronic Health Records and Internet or Email by Geographic Location, 2010</u>		
	<u>Rural</u>	<u>Urban</u>
Use Electronic Health Records	50%	59%
Use Internet or Email to:		
Obtain Lab Results, X-rays, or Hospital Records	55%	52%
Communicate with Patients	15%	22%
Use Clinical Decision Support Tools	20%	15%
Transmit Prescriptions to Pharmacies	18%	13%

Study 5: “State Responses to Health Worker Shortages: Results of 2002 Survey of States” by J. Moore and L. Payne, Center for Health Workforce Studies, School of Public Health, University at Albany, State University of New York, November 2002.

This study focuses on non-physician health workforce shortage initiatives. It is the most comprehensive study reporting the results of a survey of all 50 states and Puerto Rico, though the report is from 2002. Following are the summary findings:

1. “The majority of states (88%) reported convening task forces or commissions to study workforce shortages.”
2. “States are experiencing shortages in a wide array of health professions. Nursing shortages were cited as a major concern by 90% of states. Seventy percent of states reported pharmacist shortages as a major concern and more than half cited certified nurse aides, home health aides, dentists and radiologic technicians.”

3. “The most common strategies used by states are scholarship and loan repayment programs for health professionals. Thirty-eight states (76%) reported such programs.”
4. “Fifty-four percent of states (27) and Puerto Rico described a wide array of health workforce data collection activities.”
5. “Half of the states (25) have initiatives to market health careers.”
6. “Twenty-eight percent of states (14) are developing or have developed career ladder programs in the health professions.”
7. “Seven states (14%) reported health workforce training and education initiatives through departments of labor that tap funding streams such as H-1 B Visa Grants and WIA (Workforce Investment Act). Several states were also using TANF (Temporary Assistance to Needy Families) funding.”
8. “In order to promote improved working conditions, increased retention and improved productivity, five states have developed or are exploring strategies related to job redesign.”
9. “Several states have passed legislation prohibiting or limiting mandatory overtime and one state has passed legislation mandating minimum nurse staff ratios in hospitals.”

See the Appendix of this report for the complete report including (1) a table showing state responses by state and (2) a state-by-state description of respective responses. That table shows the following number of states with each indicated response initiative (total possible is 51 including Puerto Rico):

Task Force, Commission or Panel	44
Scholarships, Loan Repayment	38
Career Ladder Development	14
Health Career Marketing	25
Labor Department/Workforce Investment Board	7
Job Design	5
Workforce Data Collection	27

## **NEW YORK STATE COUNCIL ON GRADUATE MEDICAL EDUCATION**

Also in New York state, the New York State Council on Graduate Medical Education studies and reports on physician supply, recruitment, and retention there<sup>5</sup>. In particular, the “Doctors Across New York” program “is a state-funded initiative enacted in 2008 to help train and place physicians in underserved communities in a variety of settings and specialties to care for New York’s diverse population”.

“DANY was enacted in the 2008-09 State Budget and incorporates initiatives recommended by the Council and other groups to provide State support to train and place physicians in underserved areas in order to care for New York’s diverse population and improve access to quality health care across the State. These programs include:

- **Physician Practice Support (PPS)**  
This program provides up to \$100,000 to physicians who agree to practice in an underserved community for at least two years. Funding is available to: (1) physicians to establish or join a practice; or (2) hospitals and other health care providers to help recruit new physicians. All funding must be provided directly to physicians through sign-on bonuses, income guarantees, loan repayment or other financial incentives. In 2009, 126 awards were made and 70 health care providers were successful in recruiting physicians. (\$4.3 million in SFY 2011-12)
- **Physician Loan Repayment (LR)**  
This program provides up to \$150,000 to physicians to repay their educational debt who agree to practice in an underserved community for at least five years. Physicians, hospitals and other health care providers qualify for funding through this initiative. In 2009, 83 awards were made and 41 physicians were recruited to work in underserved areas. (\$1.7 million in SFY 2011-12)
- **Ambulatory Care Training**  
The Ambulatory Care Training Program is specifically designed to incentivize sponsoring institutions to provide clinical training of residents in freestanding diagnostic and treatment centers. Although most physicians practice medicine in freestanding diagnostic and treatment centers, most resident training occurs in hospital settings. The intent of this program is to increase resident training opportunities in freestanding diagnostic and treatment centers so that

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<sup>5</sup> 8<sup>th</sup> Report & Policy Recommendations”, New York State Council on Graduate Medical Education, September 2011,  
[http://www.health.ny.gov/professionals/doctors/graduate\\_medical\\_education/reports/09-2011\\_eighth\\_report\\_and\\_policy\\_recommendations.htm](http://www.health.ny.gov/professionals/doctors/graduate_medical_education/reports/09-2011_eighth_report_and_policy_recommendations.htm)

resident training reflects current practice trends and adequately addresses patient health care needs. (\$4.3 million in SFY 2011-12)

## **CENTER FOR THE HEALTH PROFESSIONS, UNIVERSITY OF CALIFORNIA AT SAN FRANCISCO<sup>6</sup>**

The mission of the Center for the Health Professions at the University of California, San Francisco is to transform health care through workforce research and leadership development. Since 1992, the Center has offered solutions-driven approaches to the toughest health care challenges through three areas of focus:

- Leadership Programs to empower change agents at every level and within all sectors of the health care system.
- Research to understand today's workforce issues and design actionable strategies to solve them.
- Consulting Services to creatively and collaboratively address individual and organizational needs.

The Center prepared what may be the most comprehensive research report addressing health care workforce readiness for the expected very significantly higher demand associated with the aging population and the Affordable Care Act. Other noted factors in the increased and changing demand are population growth, an increasingly culturally diverse population, and an increase in chronic disease. The Report<sup>7</sup>, titled “California’s Health Care Workforce: Readiness for the ACA Era”, and its accompanying Research Brief<sup>8</sup> provide suggested strategies to address shortages and maldistribution of the health care workforce. They are outlined below from the Research Brief.

### “Improving Supply, Distribution, and Workforce Practice Models

“Because maldistribution is such a critical issue in California, adopting and expanding successful policies that address geographic practice choices will be key.

“An underlying theme for policy making in the future is the potential to rethink how we question our supply of practitioners. Perhaps it is time to focus on the type of care – such as primary, oral, or vision – that needs to be provided rather than the type of provider in calculating supply. New practice and financing models, including patient-centered medical homes and accountable care organizations, look to teams of providers where doctors, nurses, medical assistants, and many others might all play key roles in providing care. These

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<sup>6</sup> <http://futurehealth.ucsf.edu/Public/About-The-Center/Mission.aspx>.

<sup>7</sup> “California’s Health Care Workforce: Readiness for the ACA Era” (Full Report) by Tim Bates, Lisel Blash, Susan Chapman, Catherine Dower, and Edward O’Neil, Center for the Health Professions, University of California at San Francisco, December 1, 2011.

<sup>8</sup> “California’s Health Care Workforce – Are We Ready for the ACA?” (Research Brief) by Tim Bates, Lisel Blash, Susan Chapman, Catherine Dower, and Edward O’Neil, Center for the Health Professions, University of California at San Francisco, December 1, 2011.

models will require changes in financing and reimbursement, as well as better implementation of health information technology and practice culture changes, to succeed.

“Policy suggestions include the following:

- Because professionals tend to practice where they train, increasing **training and residency opportunities in under-represented fields and communities** is a good investment.
- Expand **loan repayment programs** for practicing in underserved areas and for high-need professions.
- **Enhance telehealth** to improve communications between clinicians and patients, and between clinicians, particularly in remote areas.
- Strengthen the capacity of **safety net providers** who serve under-represented patient populations.
- Expand the **legal scopes of practice** for select professions such as nurse practitioners and physician assistants.
- Invest in training and **health information technology** that would allow the safe delegation of tasks to clinical support staff in team-based models.
- Develop **financing models** that mitigate income differences between primary and specialist providers and that reward patient outcomes-based services by teams of providers.
- Improve, standardize, and streamline **workforce data collection** and availability to enhance regional and statewide planning.
- Promote ongoing statewide and regional **partnerships for health workforce planning**. Adequate responses to changes in demand can only be met through coordinated planning efforts beyond the level of individual organizations or communities.

“Improving the Education Pipeline

“Recent state-level programs intended to increase the supply of registered nurses suggest that focus on educational investments can make a difference, but these investments must be carefully targeted. This experience highlights the need for good educational and employment data for tailoring these efforts. California’s Office of Statewide Health Planning and Development (OSHPD) has recently set up a website that offers maps of the educational programs offered in the state, which holds great promise for future students and policy makers alike.

“Specific policy considerations include:

- **Increasing the number of primary care physicians** is an important, but long-term goal that cannot be achieved fast enough to meet the upcoming increase in demand. However, investing in strategies to **encourage medical students to practice in primary care** is an important step.

- **Refocus some education resources on** professions such as **nurse practitioner and physician assistant**, which require less training time than medical school and could help meet some of the more immediate demand for primary care providers.
- Promoting and supporting innovations in **California’s community colleges** to **increase completion** of health professions programs and **enhance retention** of historically underrepresented students would also help increase diversity and meet workforce demands.
- **Investing more equitably in primary and secondary (K-12) education programs** would help prepare a more diverse group of students to enter the health professions in the first place.

#### Increasing Diversity

“While research suggests that linguistic, racial and ethnic concordance between physicians and patients improves the quality of care, the state’s mismatch between providers and patients can be mitigated by strategies to build bridges between the health care system and patients from various cultures. Possible solutions include:

- **Investing in interpretation**, including training existing providers to work better with interpreters and interpretation services; training existing bilingual clinical support staff such as medical assistants to serve as dual-role interpreters; and improving reimbursement and reward for practices utilizing interpretation services.
- Training for positions such as **community health worker, promotorá, and health educator** that can 1) facilitate links between clinical care delivery and population health and 2) reach out to California’s diverse communities to assist them in navigating the system, inform them of opportunities under the ACA and support interest in health careers.
- **Building career ladders** that allow members of California’s diverse allied health professions to move up will improve their careers, help their communities, and help diversify the health care workforce.
- **Evaluating and replicating models that work** to enroll members from under-represented communities in health professions programs.
- **Including communities of color in the policy and planning** processes for ACA implementation.”

The organizations and individuals who participated in the development of the UCSF report, provided specific solutions and recommendations that were included in the full report. Excerpts<sup>9</sup> follow.

“Leaders were asked to identify which ACA programs and policies aimed at mitigating the impact of significant increased demand for services had the

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<sup>9</sup> “California’s Health Care Workforce: Readiness for the ACA Era”, pp. 8-15.

most potential and promise for California, and whether these programs would be sufficient to meet the demand.

#### “Workforce Development

“While many of those interviewed thought that there is a shortage of primary care physicians, and that the ACA would result in increased demand on primary care clinicians, increasing the number of primary care physicians was seen as a long term solution incapable of meeting the increase in demand projected by 2014.

“Other types of providers could be developed to address these demands. While about 32 percent of physicians and one-third of physician’s assistants enter into primary care (pediatrics, family medicine and internal medicine), 65 percent of nurse practitioners do so. Interest in primary care among current medical school students has been on the wane for years, ranging between 14-20 percent, although by 2010, interest in this field had increased back to 30.5 percent. However, very few medical students (6%) were interested in family medicine.

“Even if the number of primary care providers could be increased fast enough, additional measures would be required to ensure that these new providers were a) culturally and linguistically competent, and b) targeted to the geographic areas (medically underserved) and institutions (community health clinics) likely to experience the greatest demand.

“Because the number of providers, including culturally and linguistically competent providers, is unlikely to increase fast enough to meet demand, redesigning practice models so that providers can delegate tasks to other health care professionals — such as nurses, community health workers, and medical assistants — holds promise. ...

The ability to delegate tasks is reliant not only upon changing practice models, but on enhancing health information technology, and restructuring reimbursement. One “hidden workforce” that needs to be developed to address increasing demand is the health information technology workforce. This workforce includes those tasked with implementing and maintaining telemedicine and electronic health records systems, and clinical and administrative support staff who must work with these systems. ...

#### “Strengthening Existing Models of Care

“... capacity building for [community health centers and public hospitals] will be vital to the successful implementation of health care reform. ... [One participant believed that] primarily nurse-managed centers had potential to address primary care physician shortages, especially in physician-shortage

areas, while another felt that nurse practitioners and other nurses would be better deployed in community health clinics. ...

#### “New Financing and Delivery Models

“... new financing and delivery models have greater potential for addressing the increase in demand. These include the patient-centered medical home model of care (PCMH) and accountable care organizations (ACOs). While both of these models are projected to cut costs and improve access and quality of care, the shift to the PCMH model may actually require more primary care physicians. ...

“Developing means of capturing and redirecting these cost-savings, and covering the costs of employing the allied health professionals and health information technology required to implement these models, requires fundamental reimbursement reform away from a volume-based to a value-based system.”

More specific solutions and recommendations included the following:

#### “Improve Telehealth and HIT Capacity to Implement Meaningful Use

- 1) Find ways to use HIT to stretch the health care workforce – Address the need for a **workforce competent in health information technology** that is capable of implementing, using, and maintaining electronic health records (EHRs) and telemedicine. ...
- 2) **Improve data integration** across systems so that information can be shared safely and efficiently between labs, hospitals, community health centers, and medical office practices.
- 3) **Enhance telehealth** so that primary care physicians in remote sites can access specialists and non-physician providers can provide care in remote sites and access primary care physicians. ...
- 4) **Utilize teleconferencing for interpretation services** to increase accessibility and cut the time required for interpreters to travel from place to place.

#### “Target Workforce Development

- “1) Invest in training to **develop multidisciplinary teams**. Place more emphasis on teambuilding and communication in health professions training.
- 2) **Promote and support innovations in community colleges** to increase the successful completion of health professions programs, with a focus on underrepresented racial and ethnic groups. ...
- 3) **Invest in nurse practitioner and physician assistant training programs**, and increase the number of slots available for training NPs and PAs. Both of these professions are easier to scale up and require less time in

training than primary care physicians.

4) **Maintain**, rather than increase, **capacity in RN training programs** for the time being. ...

5) **Reform nurse training** away from a hospital-based focus towards a community health-based focus. Create more roles for RN care managers and chronic disease managers to support the 10 percent of patients that incur 70 percent of health care costs. Increase clinical training for RNs and allied health workers in community clinics and home settings.

6) Train for positions like **community health worker, promotorás and health educator** that can facilitate a link between clinical care delivery and population health.

7) **Invest in primary education**: Strengthen pathway programs for the health careers and provide students with more information early on about the types of careers available beyond doctors and nurses. ...

8) **Scholarships and loans**: forgivable loans are an important component of building the health care workforce in geographically remote and underserved areas. Expanding loan repayment programs like the National Health Service Corps to registered nurses working in expanded roles (care manager) in primary care, and to professional counselors, social workers and psychologists working in community clinics ...

9) **Develop data sources**: Better data sources are needed to allow training organizations and others to determine employer demand and assess educational outcomes postgraduation.

10) **Grow-your-own strategies**: Health professions training programs need to adopt recruitment and outreach strategies that benefit the region in which they are situated. These benefits might take the form of developing health care practitioners who are culturally and linguistically concordant with local patient populations, developing practitioners who are likely to stay in underserved areas, providing jobs and economic opportunities to local communities, and providing educational support to K-12 educators in the local community. ...

#### “Promote Regional and Statewide Planning and Coordination

“1) Encourage ongoing statewide and regional partnerships for health workforce planning. ...

2) Changes underway at the Department of Mental Health Services include a statewide behavioral health services assessment and plan over the next year to look at integrating behavioral health services into primary care. This will make it imperative to integrate behavioral and mental health into statewide workforce planning.

3) Strengthen the relationship of the AHECs (Area Health Education Centers) and the community health centers so that they can better coordinate educational opportunities to train providers and other health professionals to serve in community-based health care.

“Strengthen the Capacity of Safety Net Providers

- “1) Develop better **partnerships between Community Health Centers (CHCs) and hospitals**. Encourage or require hospitals to invest in community clinics and prevention as part of their community benefit. Begin a process to place CHCs at risk of losing money if they do not reduce hospitalization, and share the savings if they do. ...
- 2) **Enhance Community Health Center electronic health record (EHR)** capacity so that CHCs can document and publicize their role in decreasing preventable emergency department utilization.
- 3) **Level the playing field between Rural Health Centers (RHCs) and FQHCs** by requiring that both provide care to the uninsured.
- 4) **Community Health Centers will need a sustainable business model** beyond ‘330 funding’, a grant program under the Public Health Service Act, which is not guaranteed past 2013. ...

“Redesign Practice Models and Financing Structures

- “1) **Develop practice models that include an interdisciplinary team** working together to provide patient care. Require all clinical staff to work at the top of their license. In a clinic or other primary care setting, staff such as care managers, promotorás, health coaches, nurses, medical assistants, community health workers, and others can be trained to take on much of the planning, screening, health education, panel management, community linkages and follow-up to lighten the burden on the primary care providers.
- 2) **Changes to reimbursement structures** that pay for value, rather than volume, and emphasize prevention, are expected to improve health outcomes and contain costs in the long run by decreasing emergency room visits and hospitalization. Reimbursement structures that cover preventive services provided by nurses, medical assistants, patient navigators, care coordinators, and other clinical support staff are vital to implementing new practice models.
- 3) Encourage **patient engagement and self-management** through renewed emphasis on prevention. Utilize telehealth, patient portals and other HIT resources to provide greater access to health information, and new staffing models to encourage patient participation.
- 4) The state of California has used its section 1115 Medicaid waiver to **restructure the state’s public hospital financing system** and prepare for the Affordable Care Act. This waiver is intended to ensure better coordination of care through the establishment and strengthening of organized delivery systems. The State is providing incentives to public hospitals for quality improvement and better integration with primary care.

“Enhance Diversity

- “... 1) Ensure that communities of color are represented on the new **Health Benefit Exchange Board**, which will broker coverage for expanded

insurance for the ACA.

2) **Fund interpreter training** for programs for medical assistants at Community Health Centers and other practice sites. ...

3) **Reimburse and reward** practices for the extra costs of using interpreting services. ...

4) Train and utilize more **promotorás** in health care settings and determine how **promotorás** can be further utilized in both Latino and non-Latino communities that need a bridge to the health care system.

5) **Fund primary education programs:** ... Support programs in the high schools like Health Academies and career and technical education so that youth connect with the subject matter early.

6) **Build career ladders:** Because the allied health professions are more diverse, building career ladders to move allied health workers up is an important strategy to diversifying the health care workforce.

7) **Develop better data:** Use data from the medical board to track race, language, ethnicity, and practice type for physicians. Implement data collection and tracking similar to this in other health professions in the state.

8) Medical schools need to need to invest in **recruiting diverse students** and in requiring **cultural competency training** of all students.

9) Work with private sector employers to encourage investment in **training a diverse workforce.** ...

10) Hold California's medical schools responsible for **recruiting local underrepresented students** and not just fulfilling their diversity requirement by recruiting from abroad.

11) Further examine the issue of **private allied health training programs.** These programs market heavily to low-income communities of color. ...”

## **ASSOCIATION OF AMERICAN MEDICAL COLLEGES**

The Association of American Medical Colleges is the association of the allopathic and osteopathic medical schools in the U.S. Its stated mission is to serve and lead the academic medicine community to improve the health of all. The AAMC is guided by nine strategic priorities:

- Serve as the voice and advocate for academic medicine on medical education, research, and health care.
- Lead innovation along the continuum of medical education to meet the health needs of the public.
- Facilitate development of a health system that meets the needs of all for access, safety, and quality of care.
- Strengthen the national commitment to discovery that promotes health and enhances the treatment of disease and disability.
- Lead efforts to increase diversity in medicine.
- Be a valued and reliable resource for data, information, and services.
- Help our members identify, implement, and sustain organizational performance improvement.
- Provide outstanding leadership and professional development to meet the most critical needs of our members.
- Nurture a culture at the AAMC that promotes excellence in service to our members and the public good.

Among its programs, the Association operates its Center for Workforce Studies to monitor physician supply and demand throughout the nation. Two of its recent studies are reported below.

“2011 State Physician Workforce Data Book”. [Excerpts]Center for Workforce Studies, Association of American Medical Colleges, November 2011.

### Highlights of the Report

#### Physician Supply

- There were 258.7 physicians per 100,000 population across the U.S. in 2010. Among the states, the supply was highest in Massachusetts at 415.5 and lowest in Mississippi at 176.4. Delaware has 268.4 physicians per 100,000 population, ranked 14<sup>th</sup> highest in the nation.
- Of those physicians, 219.5 per 100,000 were active in patient care, with Massachusetts highest at 314.8 and Mississippi lowest at 159.4. Delaware has 233.2 active patient care physicians per 100,000 population, again ranked 14<sup>th</sup> highest in the nation.
- There were 90.5 primary care physicians per 100,000 with, again, Massachusetts highest at 132.0 and Mississippi lowest at 63.6. Delaware has 95.6 primary care physicians per 100,000 population, ranked 18<sup>th</sup> highest in the nation.

- There were 79.4 active primary care physicians per 100,000 with Vermont highest at 111.5 and Utah lowest at 58.4. Delaware has 84.7 active primary care physicians per 100,000 population, ranked 20<sup>th</sup> highest in the nation.

#### Retention

- Nationally, 38.6% of physicians end up practicing in the same state where they attended medical school. (Five states do not have a medical school: Alaska, Delaware, Idaho, Montana, and Wyoming.)
- After completing their last graduate medical training in a residency or fellowship, 47.8% of physicians stayed or returned to the state where they completed that training.
- Retention was highest, 66.6%, for physicians who completed both their medical education and graduate medical education in the same state.
- Delaware retained 30.3% of the physicians who completed graduate medical education in the state, ranked 49<sup>th</sup> in the nation, higher than only New Hampshire.

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A second AAMC report: “Recent Studies and Reports on Physician Shortages in the US”, Center for Workforce Studies, Association of American Medical Colleges, August 2011. (See Appendix for full report.)

The report summarizes physician supply shortage studies and reports in various states in the U.S., for selected specialties, and nationally. The following supply improvement initiatives were noted:

- Establishing or expanding arrangements for seats at neighboring/other states’ medical schools (Alaska, Idaho)
- Increasing the number of residency positions in the state (Alaska, Florida, Maryland, Journal of Neurosurgery, The Physicians Foundation)
- Removing the cap on GME positions (The Physicians Foundation)
- Expanding loan repayment assistance programs for physicians practicing in the state (Alaska)
- Establishment of one or more new medical schools (California, Florida, Nevada, Texas, The Physicians Foundation)
- Increasing the class size at existing medical schools (Georgia, Iowa, Kentucky, Association of American Medical Colleges, U.S. Council on Graduate Medical Education)
- Establish regional campus(es) for existing medical schools (Georgia, Kentucky)
- Collecting data or establishing special group to analyze the shortage issue (Illinois, Nebraska, New Jersey, New Mexico, Virginia, Association of Academic Health Centers)
- Establishing a state loan forgiveness program (Maryland)

- Offering other incentives for practice in underserved areas or specialized populations (Maryland, American Academy of Family Practitioners, Association of Directors of Geriatric Academic Programs)
- New models of care (American College of Physicians, Expert Work Group on Pediatric Subspecialties, The Physicians Foundation, Association of American Medical Colleges)
- Improved compensation/reimbursement for practice in underserved areas (Center for Studying Health System Change)

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On its website, the AAMC lists the following 81 loan repayment/forgiveness programs<sup>10</sup>:

Allied Health Loan-for-Service Program	New Mexico	State	Loan Program
Arizona Loan Repayment Program	Arizona		Repayment
Arizona Rural Private Primary Care Provider Loan Repayment Program	Arizona	State	Repayment
Board of Medical Scholarship Awards	Alabama		Scholarship
Community Match Rural Physician Recruitment Program	Arkansas	State	Repayment
Community Practitioner Program	North Carolina	State	Scholarship
Delaware State Loan Repayment Program	Delaware	Federal/State	Repayment
Doctors Across New York	New York	State	Repayment
Doctors for Maine's Future Scholarship	Maine		Scholarship
Dr. James L. Hutchinson & Evelyn Ribbs Hutchinson Medical School Scholarship	California	State	Scholarship
Family Practice Resident Rural Scholarship Program	Oklahoma	State	Scholarship
Georgia Physician Loan Repayment Program	Georgia	State	Repayment
Health Access Incentive Program: Incentive Grant: Mid-Levels	Tennessee	State	Repayment
Health Access Incentive Program: Incentive Grant: Physicians	Tennessee	State	Repayment
Health Professional Loan Repayment	Missouri	Federal/State	Repayment
Health Professional Loan Repayment Program (HPLPP)	New Mexico	Federal/State	Repayment
Health Professional Recruitment Program (HPRP)	Iowa	State	Forgiveness
Illinois/National Health Service Corps Loan Repayment Program	Illinois	Federal/State	Repayment
Indian Health Service Loan Repayment Program	Maryland		Repayment
Indian Health Service Scholarship Program	Maryland		Scholarship
Indiana Primary Care Scholarship Program (IPCSP)	Indiana	State	Scholarship
Iowa PRIMECARRE Loan Repayment Program	Iowa	Federal/State	Repayment
Kansas Bridging Plan	Kansas	State	Forgiveness
Kansas State Loan Repayment Program	Kansas	State	Repayment
Kentucky State Loan Repayment Program	Kentucky	Federal/State	Repayment
Loan Assistance Repayment Program-Primary Care Services	Maryland	State	Repayment
Louisiana State Loan Repayment Program	Louisiana	Federal/State	Repayment
Maine Health Professions Loan Program	Maine	State	Forgiveness
Massachusetts State Loan Repayment Program	Massachusetts	Federal/State	Repayment
Medical Student Loan Program	West Virginia	State	Forgiveness
Michigan State Loan Repayment Program	Michigan	Federal/State	Repayment
Minnesota Dentist Loan Forgiveness Program	Minnesota	State	Forgiveness
Minnesota Nurse Loan Forgiveness Program	Minnesota	State	Forgiveness
Minnesota Rural Mid-level Practitioner Loan Forgiveness Program	Minnesota	State	Forgiveness
Minnesota Rural Physician Loan Forgiveness Program	Minnesota	State	Forgiveness
Minnesota State Loan Repayment Program	Minnesota	Federal/State	Repayment
Minnesota Urban Physician Loan Forgiveness Program	Minnesota	State	Forgiveness
Montana Rural Physician Incentive Program (MRPIP)	Montana	State	Repayment

<sup>10</sup>

[https://services.aamc.org/fed\\_loan\\_pub/index.cfm?fuseaction=public.welcome&CFID=1660045&CFTOKEN=34526630](https://services.aamc.org/fed_loan_pub/index.cfm?fuseaction=public.welcome&CFID=1660045&CFTOKEN=34526630), August 17, 2012.

NC Student Loan Program for Health, Science and Mathematics	North Carolina	State	Scholarship-Loan
NHSC Loan Repayment Program 2012	National Health Service Corps	Federal	Repayment
NHSC Scholarship Program	National Health Service Corps	Federal	Scholarship
NHSC/CA State Loan Repayment Program	California	Federal	Repayment
NIH Loan Repayment Programs (LRP)	National Institutes of Health	Federal	Repayment
NIH Undergraduate Scholarship Program (for Individuals from Disadvantaged Backgrounds)	National Institutes of Health	Federal	Scholarship
Nebraska Loan Repayment Program	Nebraska		Repayment
Nevada Health Service Corps	Nevada	State	Repayment
New Hampshire State Loan Repayment Program	New Hampshire	Federal/State	Repayment
New Mexico Medical Loan-for-Service Program	New Mexico	State	Loan Program
North Carolina State Loan Repayment Program	North Carolina	State	Repayment
Nursing Loan-for-Service Program	New Mexico	State	Loan Program
Oregon Rural Health Services (RHS) Loan Repayment Program	Oregon	State	Repayment
Pennsylvania's Primary Health Care Practitioners Loan Repayment Program	Pennsylvania	Federal/State	Repayment
Physician/Community Match Loan Program	Oklahoma	State	Loan Program
Physicians for Rural Areas Assistance Program	Georgia	State	Repayment
Primary Care Loan Redemption Program of New Jersey	New Jersey	Federal/State	Repayment
Primary Care Resource Initiative for Missouri (PRIMO)	Missouri	State	Forgiveness
Professional and Practical Nurse Student Loan	Missouri	State	Loan Program
Rhode Island Primary Care Loan Forgiveness Program	Rhode Island	State	Forgiveness
Rural Kentucky Medical Scholarship Fund (RKMSF) Grant Program	Kentucky		Scholarship/Grant
Rural Medical Education Scholarship Loan Program	Oklahoma	State	Scholarship
Rural Practice Scholarship Program	Arkansas		Scholarship
South Dakota Midlevel Tuition Reimbursement Program	South Dakota	State	Scholarship
South Dakota Physician Tuition Reimbursement Program	South Dakota		Tuition Reimbursement
State Health Care Professional Loan Repayment Program	Colorado	Federal/State	Repayment
State Medical Education Board Scholarship Program	Georgia	State	Scholarship
State Medical Education Loan/Scholarship Program	Mississippi	State	Scholarship-Loan
Tennessee Rural Health Loan Forgiveness Program	Tennessee	State	Forgiveness
The Health Professions Loan Repayment Program	California	State	Repayment
The Medical Personnel Loan Repayment Program	North Dakota	State	Repayment
The Pisacano Scholars Leadership Program	American Board of Family Practice		Scholarship
The State Community Matching Physician Loan Repayment Program	North Dakota	State	Repayment
The Steven M. Thompson Physician Corps Loan Repayment Program	California	State	Repayment
U.S. Air Force Health Professions Scholarship Program (HPSP)	US Air Force	Federal	Scholarship
U.S. Army Health Professions Scholarship Program	US Army	Federal	Scholarship
U.S. Navy Health Professions Scholarship Program	US Navy	Federal	Scholarship
U.S. Navy Health Professions Loan Repayment Program (HPLRP)	US Navy	Federal	Repayment
Vermont State Educational Loan Repayment Program for Primary Care Practitioners	Vermont		Loan Repayment & Forgiveness
Virginia State Loan Repayment Program (Va-SLRP)	Virginia	Federal/State	Repayment
WA State Health Professional Loan Repayment Program	Washington	Federal/State	Repayment
WICHE Professional Student Exchange Program	Montana	State	Professional Student Exchange
WWAMI Medical Exchange Program	Montana	State	Medical Education Program
Wisconsin Health Professions Loan Assistance Program	Wisconsin	Federal/State	Repayment

## **OTHER STUDIES AND REPORTS**

### Effect of the Affordable Care Act on Loan Repayment Programs

“Health Care Reform Provision May Prompt More Service Commitments”, by Barbara Bein, AAFP News Now, American Academy of Family Practitioners, July 27, 2010 presented at <http://www.aafp.org/online/en/home/publications/news/news-now/professional-issues/20100727hcreformseries-taxrelief.html>

“ ... Under Section 10908 of the new Patient Protection and Affordable Care Act, an existing tax exclusion has been expanded to include health professionals in 16 states who are enrolled in these types of state loan repayment or loan forgiveness programs. Moreover, the exclusion is being applied retroactively to 2009, which means that program participants in these states may be eligible for a tax refund.

According to a press release from the Internal Revenue Service, or IRS, the exclusion was expanded as part of efforts to strengthen the health care workforce.

Physicians who received student loan forgiveness for practicing in medically underserved areas of their states can check with the state loan program offices shown below to see whether their loan amounts qualify for tax relief under new federal legislation intended to boost the health care workforce in these underserved areas.

"Doctors and nurses who choose to practice in underserved areas make a great contribution to their local communities," said IRS Commissioner Doug Shulman in the press release. "By expanding the tax exclusion for student loan forgiveness, the (Patient Protection and) Affordable Care Act provides an even greater incentive to practice medicine in areas that need it most."

... before passage of the Patient Protection and Affordable Care Act, only loan repayment programs sponsored by the National Health Service Corps, or NHSC -- a federal program designed to place primary care physicians and other primary care health professionals in health professional shortage areas -- and certain state programs modeled after it received individual federal income tax exemptions.

The following loan repayment programs are identified by the American Academy of Family Practitioners:

1. Delaware State Loan Repayment Program
2. Massachusetts State Loan Repayment Program
3. Minnesota State Loan Repayment Program
4. Minnesota Rural Physician Loan Forgiveness Program
5. Minnesota Urban Physician Loan Forgiveness Program
6. Missouri Health Professional Loan Repayment Program
7. Primary Care Resource Initiative for Missouri

8. Nebraska Loan Repayment Program
9. New Hampshire State Loan Repayment Program
10. New Mexico Health Professions Loan repayment Program
11. New York Physician Loan Repayment Program
12. North Carolina Medical Society Foundation Community Practitioner Program
13. North Carolina State Loan Repayment Program
14. Oregon Partnership State Loan Repayment Program
15. Pennsylvania Primary Health Care Loan Repayment Program
16. Physician Education Loan Repayment Program of Texas
17. Utah Health Care Workforce Financial Assistance Program
18. Washington State Health Professional Loan Repayment Program
19. West Virginia State Loan Repayment Program
20. Wisconsin Health Professions Loan Assistance Program

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“A Community Development Approach to Rural Recruitment”, by C.K. Shannon, WVU Department of Family Medicine, PO Box 9152, Health Sciences Center, Morgantown, WV 26506, USA. [shannonk@rcbhsc.wvu.edu](mailto:shannonk@rcbhsc.wvu.edu). J Rural Health. 2003;19 Suppl:347-53.

#### Abstract (**Emphasis Added**)

Programs designed to empower rural communities for health care provider recruitment have usually focused on the health care sector without aggressively addressing broader community development issues. The Recruitable Community Project (RCP) in West Virginia includes community education on recruiting and also assessments of and recommendations to rural communities on broad-based community development, aiming to enhance communities' recruiting potential. The project provides multidisciplinary university-based planning assistance programs for small communities, involving collaborative community visits. The project also uses a project manager as a "community encourager" who participates in community education and in the formulation of sustained community recruiting efforts.

From August 1999 through August 2001, 7 underserved rural communities completed the RCP organizational processes and hosted planning assistance teams. Members of community recruitment boards gave high marks to the RCP process, its planning assistance teams, and its usefulness in establishing community ties to state and academic agencies. Since working with the RCP, the 7 communities have recruited 27 providers, success possibly stimulated by their RCP involvement (data current as of September 2002).

**This model of community training and development to empower rural communities to better recruit health professionals shows early promise.** This model could be broadened to include more collaboration of community development

and health science disciplines programs for recruitment and retention efforts.

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“Effectiveness of Financial Incentives in Exchange for Rural and Underserved Area Return-of-Service Commitments: Systematic Review of the Literature.” by I.P. Sempowski IP, Department of Family Medicine, Queen's University, Kingston, Ontario. Can J Rural Med. 2004 Spring;9(2):82-8.

#### Abstract (**Emphasis Added**)

##### OBJECTIVE:

To evaluate the effectiveness of programs that provide financial incentives to physicians in exchange for a rural or underserved area return-of-service (ROS) commitment.

##### METHODS:

Medline and Ovid HealthSTAR databases were searched from 1966 to 2002.

##### STUDY SELECTION:

The initial search yielded 516 results. Bibliography review yielded additional references. Articles were excluded if they involved financial incentives to change physician behaviours or enhance profit. Ten publications were selected as the highest level of evidence available. The quality of the evidence was low and of limited applicability (1 retrospective and 1 prospective cohort study, the remainder cross-sectional surveys). Three studies were from Canada, 1 from New Zealand, and the remaining 6 were from the United States.

##### RESULTS:

Outcome measures included initial recruitment of physicians, buyout rates and long-term retention. The majority of studies reported effective recruitment despite high buyout rates in some US-based programs. Increasing Canadian tuition and debt among medical students may make these programs attractive. **The 1 prospective cohort study on retention showed that physicians who chose voluntarily to go to a rural area were far more likely to stay long term than those who located there as an ROS commitment. Multidimensional programs appeared to be more successful than those relying on financial incentives alone.**

##### CONCLUSION:

**ROS programs to rural and underserved areas have achieved their primary goal of short-term recruitment but have had less success with long-term retention.** Additional research is needed to examine the cost effectiveness of existing ROS programs and the incorporation of other retention strategies, such as medical education initiatives, community and professional support, differential rural fees and alternate funding models.

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“Long-term retention of graduates from a program to increase the supply of rural family physicians” Rabinowitz HK, Diamond JJ, Markham FW, Rabinowitz C. Source. Department of Family Medicine, Jefferson Medical College of Thomas Jefferson University, Suite 401, 1015 Walnut Street, Philadelphia, PA 19107, USA. Howard.Rabinowitz@jefferson.edu. Acad Med. 2005 Aug;80(8):728-32.

Abstract (**Emphasis Added**)

PURPOSE:

To determine the long-term retention of rural family physicians graduating from the **Physician Shortage Area Program (PSAP) of Jefferson Medical College.**

METHOD:

Of the 1,937 Jefferson graduates from the classes of 1978-1986, the authors identified those practicing rural family medicine when their practice location was first determined. The number and percent of PSAP and non-PSAP graduates practicing family medicine in the same rural area in 2002 were then identified, and compared to the number of those graduates practicing rural family medicine when they were first located in practice 11-16 years earlier.

RESULTS:

After 11-16 years, 68% (26/38) of the PSAP graduates were still practicing family medicine in the same rural area, compared with 46% (25/54) of their non-PSAP peers ( $p = .03$ ). Survival analysis showed that PSAP graduates practice family medicine in the same rural locality longer than non-PSAP graduates ( $p = .04$ ).

CONCLUSIONS:

These results are the first to show long-term rural primary care retention that is longer than the median duration. **This outcome combined with previously published outcomes show that the PSAP represents the only program that has resulted in multifold increases in both recruitment (eight-fold) and long-term retention (at least 11-16 years). In light of recent national recommendations to increase the total enrollment in medical schools, allocating some of this growth to developing and expanding programs similar to the PSAP would make a substantial and long lasting impact on the rural physician workforce.**

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“Recruiting medical students to rural practice: perspectives of medical students and rural recruiters.” Jutzi L, Vogt K, Drever E, Nisker J. Department of Obstetrics and Gynecology, University of Western Ontario, Schulich School of Medicine & Dentistry, London, ON. Can Fam Physician. 2009 Jan;55(1):72-3, 73.e1-4.

## Abstract (**Emphasis Added**)

### OBJECTIVE:

To explore the strategies used by rural recruitment programs and their perceived influence on medical students.

### DESIGN:

Two original questionnaires delivered electronically, one to medical students and the other to recruiters in rural Ontario communities.

### SETTING:

Ontario, Canada.

### PARTICIPANTS:

All 525 medical students enrolled in the Schulich School of Medicine & Dentistry at the University of Western Ontario in London and physician recruiters in 71 rural communities in Ontario were invited to participate in the study.

### MAIN OUTCOME MEASURES:

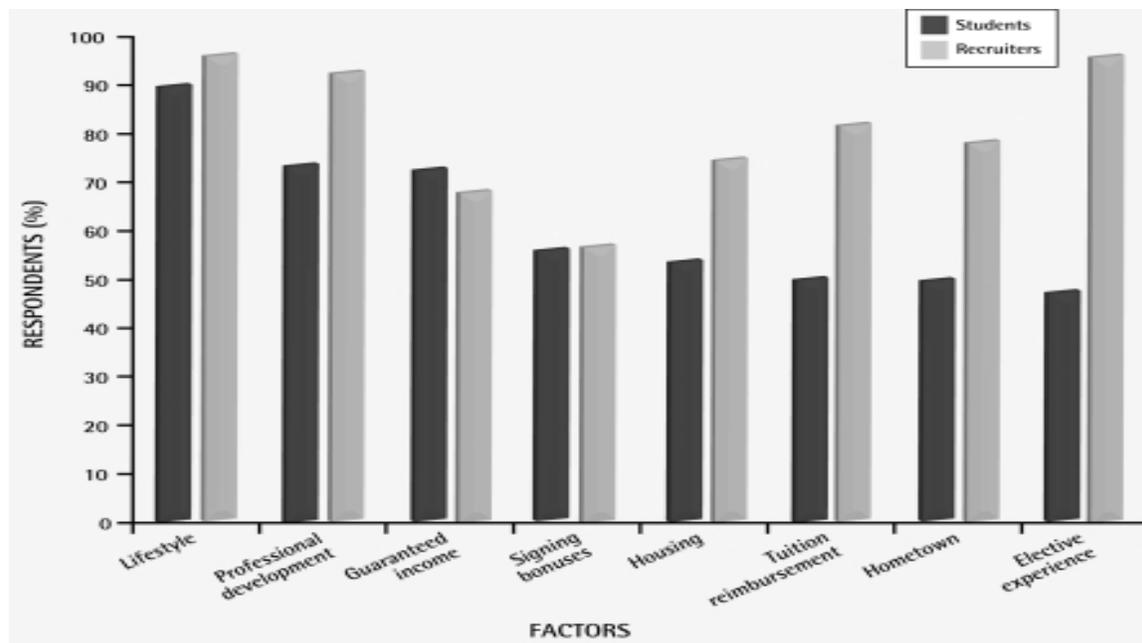
The factors that influence medical students to consider rural practice, strategies used by recruiters, and student perceptions of the ethical appropriateness of both.

### RESULTS:

The questionnaire was completed by 42.1% of medical students. Lifestyle considerations were an important influence for 93.1% of students. Themes from the qualitative analysis included the ethical appropriateness of financial considerations, economic forces, perceived disadvantages of rural practice, competition between communities, and lack of altruism. Responses were received from recruiters in 43.7% of communities; of those, 92.9% offered financial incentives to attract prospective physicians.

### CONCLUSION:

**Financial and lifestyle considerations are important influences on medical students' choice to practise in rural communities. Most medical students felt incentive programs offered by rural communities were ethically appropriate.**



Percentage of medical students and rural recruiters rating factors involved in the decision to practise in rural communities as important to medical students

“Why doctors choose small towns: a developmental model of rural physician recruitment and retention”. Hancock, [Steinbach A](#), [Nesbitt TS](#), [Adler SR](#), [Auerswald CL](#). UC Berkeley - UC San Francisco Joint Medical Program, Berkeley, CA 94720, United States. [Christine.Hancock@ucsf.edu](mailto:Christine.Hancock@ucsf.edu). *Soc Sci Med*. 2009 Nov;69(9):1368-76. Epub 2009 Sep 9.

### Abstract (**Emphasis Added**)

Shortages of health care professionals have plagued rural areas of the USA for more than a century. Programs to alleviate them have met with limited success. These programs generally focus on factors that affect recruitment and retention, with the supposition that poor recruitment drives most shortages. The strongest known influence on rural physician recruitment is a "rural upbringing," but little is known about how this childhood experience promotes a return to rural areas, or how non-rural physicians choose rural practice without such an upbringing. Less is known about how rural upbringing affects retention.

Through twenty-two in-depth, semi-structured interviews with both rural- and urban-raised physicians in northeastern California and northwestern Nevada, this study investigates practice location choice over the life course, describing a progression of events and experiences important to rural practice choice and retention in both groups. Study results suggest that rural exposure via education, recreation, or upbringing facilitates future rural practice through four major pathways. Desires for familiarity, sense of place, community involvement, and self-actualization were the

major motivations for initial and continuing small-town residence choice. A history of strong community or geographic ties, either urban or rural, also encouraged initial rural practice. Finally, prior resilience under adverse circumstances was predictive of continued retention in the face of adversity. Physicians' decisions to stay or leave exhibited a cost-benefit pattern once their basic needs were met.

**These results support a focus on recruitment of both rural-raised and community-oriented applicants to medical school, residency, and rural practice. Local mentorship and "place-specific education" can support the integration of new rural physicians by promoting self-actualization, community integration, sense of place, and resilience.** Health policy efforts to improve the physician workforce must address these complexities in order to support the variety of physicians who choose and remain in rural practice.

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BMC Health Serv Res. 2009 May 29;9:86.

“Financial incentives for return of service in underserved areas: a systematic review”. Bärnighausen T, Bloom DE. Africa Centre for Health and Population Studies, University of KwaZulu-Natal, Mtubatuba, South Africa.  
tbaernig@hsph.harvard.edu

#### Abstract (**Emphasis Added**)

##### BACKGROUND:

In many geographic regions, both in developing and in developed countries, the number of health workers is insufficient to achieve population health goals. Financial incentives for return of service are intended to alleviate health worker shortages: A (future) health worker enters into a contract to work for a number of years in an underserved area in exchange for a financial pay-off.

##### METHODS:

We carried out systematic literature searches of PubMed, the Excerpta Medica database, the Cumulative Index to Nursing and Allied Health Literature, and the National Health Services Economic Evaluation Database for studies evaluating outcomes of financial-incentive programs published up to February 2009. To identify articles for review, we combined three search themes (health workers or students, underserved areas, and financial incentives). In the initial search, we identified 10,495 unique articles, 10,302 of which were excluded based on their titles or abstracts. We conducted full-text reviews of the remaining 193 articles and of 26 additional articles identified in reference lists or by colleagues. Forty-three articles were included in the final review. We extracted from these articles information on the financial-incentive programs (name, location, period of operation, objectives, target groups, definition of underserved area, financial incentives and obligation) and information on the individual studies (authors, publication dates, types of study outcomes, study design, sample criteria and sample size, data sources, outcome

measures and study findings, conclusions, and methodological limitations). We reviewed program results (descriptions of recruitment, retention, and participant satisfaction), program effects (effectiveness in influencing health workers to provide care, to remain, and to be satisfied with work and personal life in underserved areas), and program impacts (effectiveness in influencing health systems and health outcomes).

#### RESULTS:

Of the 43 reviewed studies 34 investigated financial-incentive programs in the US. The remaining studies evaluated programs in Japan (five studies), Canada (two), New Zealand (one) and South Africa (one). The programs started between 1930 and 1998. We identified five different types of programs (service-requiring scholarships, educational loans with service requirements, service-option educational loans, loan repayment programs, and direct financial incentives). Financial incentives to serve for one year in an underserved area ranged from year-2000 United States dollars 1,358 to 28,470. All reviewed studies were observational. The random-effects estimate of the pooled proportion of all eligible program participants who had either fulfilled their obligation or were fulfilling it at the time of the study was 71% (95% confidence interval 60-80%). Seven studies compared retention in the same (underserved) area between program participants and non-participants. Six studies found that participants were less likely than non-participants to remain in the same area (five studies reported the difference to be statistically significant, while one study did not report a significance level); one study did not find a significant difference in retention in the same area. Thirteen studies compared provision of care or retention in any underserved area between participants and non-participants. Eleven studies found that participants were more likely to (continue to) practice in any underserved area (nine studies reported the difference to be statistically significant, while two studies did not provide the results of a significance test); two studies found that program participants were significantly less likely than non-participants to remain in any underserved area. Seven studies investigated the satisfaction of participants with their work and personal lives in underserved areas.

#### CONCLUSION:

Financial-incentive programs for return of service are one of the few health policy interventions intended to improve the distribution of human resources for health on which substantial evidence exists. However, the majority of studies are from the US, and only one study reports findings from a developing country, limiting generalizability. **The existing studies show that financial-incentive programs have placed substantial numbers of health workers in underserved areas and that program participants are more likely than non-participants to work in underserved areas in the long run, even though they are less likely to remain at the site of original placement.** As none of the existing studies can fully rule out that the observed differences between participants and non-participants are due to selection effects, the evidence to date does not allow the inference that the programs have caused increases in the supply of health workers to underserved areas.

## **INTERSTATE AGREEMENTS FOR MEDICAL SCHOOL TRAINING<sup>11</sup>**

Inasmuch as various studies note the significantly higher likelihood of physicians to practice in the state where they have gone to medical school and/or to have received their graduate medical education (internship, residency, fellowship, etc.), the absence of a medical school in Delaware may make the challenge of recruitment more difficult. While Delaware does not have a medical school, it is not unique in that respect. There is no medical school in the states of Alaska, Idaho, Montana, and Wyoming. The strategies of those states may be instructive for Delaware as it considers its planning and policies.

Alaska, Idaho, Montana, and Wyoming have joined with the State of Washington and the University of Washington School of Medicine (UWSOM) to form the WWAMI program – the acronym is derived from the first letters of the states' names. Following is information on WWAMI.

From the University of Washington website<sup>12</sup>:

### “WWAMI Program History and Philosophy

“The WAMI program started in 1971, with Wyoming joining in 1996 to form the acronym WWAMI. WWAMI was founded with five goals: 1) provide publically [sic] supported medical education; 2) increase the number of primary-care physicians and correct the maldistribution of physicians; 3) provide community-based medical education; 4) expand graduate medical education (residency training) and continuing medical education; and 5) provide all of these in a cost-effective manner. Those goals—with many successes—remain in place today.

“WWAMI is recognized nationally and internationally as a model program for training physicians and other health professionals for rural areas. The program has set the standard for decentralized medical education. In 2002, the WWAMI program was recognized by the Association of American Medical Colleges with the Outstanding Community Service Award, given annually to just one medical school in the nation.

### “How it Works

“Each participating state has a specific number of medical students admitted each year; these students are supported through a combination of appropriated state funds and student tuition covering the full cost of medical education. Students spend their first year at their home state university and their second year in Seattle; they then have the opportunity to complete their

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<sup>11</sup> Information provided by University of Washington School of Medicine; Seattle, WA; Kellie A. Engle, Director of Operations, Regional Affairs; [kaengle@uw.edu](mailto:kaengle@uw.edu); 206-543-2249.

<sup>12</sup> <http://www.uwmedicine.org/education/wwami/Pages/default.aspx>, August 26, 2012.

third- and fourth-year required and elective clerkships throughout the WWAMI states.

#### “Positive Results

“The University of Washington School of Medicine has been identified as the nation’s top primary-care school in each of the last 18 years by U.S. News & World Report as well as the top medical school in the nation in family medicine and rural medicine training for the past 20 years.

“Most important, outcomes indicate that WWAMI works. Over the past 30 years, over 60 percent of graduating students have chosen to remain within the five-state area to practice. Over the course of the past 20 years, very close to 50 percent of graduating students have chosen to pursue careers in primary care. This is particularly important since more than one-third of the population in the WWAMI region lives in rural, largely underserved areas. Upon graduation from graduate medical education, an estimated 20 percent of WWAMI graduates will practice in Health Professional Shortage Areas (HPSAs).”

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From University of Washington School of Medicine documents:

#### WHY WWAMI?

Regional medical school offers cost-effective, high-quality education and training for one-quarter of the U.S. landmass

- In contrast to the high number of medical schools in other states (average 2.66 per state), the five states of Washington, Wyoming, Alaska, Montana and Idaho have one medical school, WWAMI, started and managed by the University of Washington School of Medicine for the past 40 years.
- WWAMI is the only medical school in the nation that crosses state lines. WWAMI provides medical education for 28 percent of the American land mass.
- In WWAMI, medical students spend their first year in their home state (at University of Washington, Washington State University-Pullman, Washington State University-Spokane, University of Wyoming, University of Alaska, Montana State University, University of Idaho), their second year at the University of Washington, and their third and fourth years completing clinical training in hospitals and clinics throughout the five-state WWAMI region.

- WWAMI is extraordinarily cost effective. For all U.S. medical schools, the average annual cost is approximately \$116,000 per medical student per year. The comparable figure for the WWAMI Program is approximately \$67,000 per student per year, a remarkable savings of \$50,000 per student per year.
- Today, starting a new medical school can cost \$100-150 million to build facilities, attract faculty, and pay operating expenses. New medical schools require expertise in medical education, curriculum development, and identification and preparation of clinical training sites.
- WWAMI offers medical school training across the five states without the expense (financial, resources, curriculum development) of building new medical schools. WWAMI introduces:
  - Cost-effective and high-quality medical education
  - Sharing of resources, expertise and knowledge
  - Collaboration and partnership that lead to innovation and stability
  - A solution to the region's healthcare workforce shortages
- WWAMI is a proven model for training physicians in shortage areas such as primary care and in rural and urban underserved care. WWAMI's students choose to return to practice in their home states at a higher percentage than the national average.
  - National return rate for public medical schools: 39%
  - WWAMI Wyoming return rate: 67%
  - WWAMI Alaska rate: 45%
  - WWAMI Montana return rate: 40%
  - WWAMI Idaho return rate: 50%

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“Regional Solutions to the Physician Workforce Shortage: The WWAMI Experience”, by Tom E. Norris, John B. Coombs, Peter House, Sylvia Moore, Marjorie D. Wenrich, and Paul G. Ramsey. Academic Medicine. 2006; 81:857–862.

Abstract [copy of the full article in Appendix]

“With major medical organizations predicting a national shortage of physicians in coming years, a number of institutional models are being considered to increase the numbers of medical students. At a time when the cost of building new medical schools is extremely expensive, many medical schools are considering alternative methods for expansion. One method is regional expansion. The University of Washington School of Medicine (UWSOM) has used regional expansion to extend medical education across five states without the need to build new medical schools or campuses.

“The WWAMI program (the acronym for Washington, Wyoming, Alaska, Montana, Idaho), which was developed in the early 1970s, uses existing state universities in five states for first-year education, the Seattle campus for second-year education, and clinical sites across all five states for clinical education. Advantages of regional expansion include increasing enrollment in a cost-effective fashion, increasing clinical training opportunities, responding to health care needs of surrounding regions and underserved populations, and providing new opportunities for community-based physicians to enhance their practice satisfaction.

“Challenges include finding basic-science faculty at regional sites with backgrounds appropriate to medical students, achieving educational equivalence across sites, and initiating new research programs. UWSOM’s successful long- term regional development, recent expansion to Wyoming in 1997, and current consideration of adding a first- year site in Spokane, Washington, indicate that regional expansion is a viable option for expanding medical education.”

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### Does WWAMI Regional Medical Education Work?

#### Is WWAMI cost-effective?

National mean for cost of educating a medical student per year: \$105,000

WWAMI cost of educating a medical student per year: \$65,000

#### Is WWAMI effective in training for primary care?

Percent graduates nationally entering primary care: 40%

Percent WWAMI graduates entering primary care: 52%

#### Is WWAMI effective in retaining trainees to practice in WWAMI?

Percent WWAMI students who return to home WWAMI state to practice:

Washington	N/A
Wyoming	66%
Alaska	51%
Montana	41%
Idaho	49%
National Mean	39%

Percent WWAMI students (regardless of home state) who return to a WWAMI state to practice (“return on investment”):

Washington	46%
Wyoming	68%
Alaska	71%
Montana	51%
Idaho	72%

“Return to practice” rates from graduate medical education trainees:

National percent GME grad return rate	47%	
WWAMI percent GME grad return rate		National Rank
Washington	48%	17
Wyoming	29%	49
Alaska	74%	1
Montana	60%	3
Idaho	56%	9

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Following are “Fact Sheets” for each of the four states without medical schools.

### **ALASKA WWAMI 2010-2011 Fact Sheet**

#### **Medical Student Education**

1st Year – University of Alaska (Anchorage) for basic sciences/introduction to clinical medicine

2nd Year – University of Washington (Seattle) for integration of basic and clinical sciences/Colleges

3rd Year – Required clinical rotations (WWAMI-wide)

- The Alaska Track – all 3rd year rotations can be done in Alaska
- WRITE (WWAMI Rural Integrated Training Experience) 5 months in Alaska

4th Year – Required and elective clinical rotations

- Ability to do all 4th year rotations in Alaska is under development

#### **Pre-Med**

- Della Keats/U-DOC Health Career summer program 6-weeks for 17 Alaska high school juniors and seniors interested in healthcare professions in (funded by NIH & UAA; organized through UAA’s WWAMI Biomedical Program in partnership with the Anchorage Imaginarium)
- NIH NIDDK STEP-UP High School, Summer Research Program –8 wks, 4 Alaska high school juniors and seniors from underrepresented backgrounds, core classes in conjunction with Della Keats/U-DOC
- NIH NIDDK STEP-UP Undergraduate Summer Research Program 9-wk experiences at UA campuses
- NIH NIDDK PI/AN had 2 students
- Annual PreMed Summit (2010 had 257 participants with interactive video to/from both UAF and UAS; representatives from UW, U Minnesota and the Assn. of Amer. Med. Coll. attended)

#### **Graduate Medical Education – Residencies/Fellowships**

- Alaska based/University of Washington affiliated
  - Family Medicine – Anchorage with rotations in 17 rural Alaska locations (71 applicants for 12 slots)
  - Palliative Care Fellowship – 1 per year
  - 78% of graduates practicing in Alaska
- University of Washington residencies in Alaska
  - Internal Medicine – Residents rotating through Alaska Native Medical Center (12 in 2011)

#### **WWAMI Results: 284 Alaska WWAMI graduates have completed residency training**

- “Return on Investment” – 239/284 (84%) graduates from all WWAMI sites practicing or having practiced in Alaska
- Return Rate – 129/284 (45%) practicing or having practiced in Alaska (National average less than 40%)

#### **Financial Support of WWAMI**

- FY 2011 state appropriations to UW - \$3,598,531
- FY 2011 amount of state appropriations to UW spent in Alaska - \$2,300,033
- FY 2011 % state appropriations to UW spent in Alaska – 64%
- FY 2011 average state support to UW per student per year (2nd – 4th year) - \$50,494 (National average state support per student - \$115,874)
- FY 2011 average student paid tuition and fees per year - \$25,286 (FY08 National Average: \$23,620)
- FY 2010 Average Alaska WWAMI medical school debt per student: \$117,872
- FY 2010 National medical school debt average: \$136,833 per student - publicly funded school; \$157,919 per student - private

### **Physician Assistant Program**

- 1st Year – University of Washington /University of Alaska Anchorage didactic training in Anchorage
- 2nd Year – University of Alaska Anchorage clinical year preceptorship and clerkships
  - Both years offered in Alaska
- Graduates may obtain Bachelor of Science in Health Sciences from UAA

### **Community Outreach**

- WWAMI AHEC (Area Health Education Center)
  - R/UOP (Rural/Underserved Opportunities Program) – One-month student placement in a rural or medically underserved community and complete a community service project. 13 WWAMI medical students were placed in the summer of 2010. Of the 20 medical students enrolled in the WWAMI Medical School Program at the University of Alaska, 11 students participated in RUOP. We also had 5 Dental R/UOP placements in Alaska.
  - Mini-Medical School – in its eighth year, televideo between Fairbanks and Anchorage

## **IDAHO WWAMI Fact Sheet (July 1, 2010 – June 30, 2011)**

### **Pre-Med**

- State-wide Pre-med Summit held every other summer, 2010 Pre-med Summit was held at the University of Idaho, Boise, June, 11-12. (2010 participants; 56 students/4 Idaho pre-med college advisors)
- Pre-med Summer Primary Care Shadowing Opportunities coordinated through Idaho WWAMI, and Idaho Academy of Family Physicians. (2011 participants; 18 students/13 family medicine physicians/7 different communities)

### **Medical Student Education**

**1st Year** – at University of Idaho for basic sciences/introduction to clinical medicine (20 Idaho students, 2011)

**R/UOP** (Rural/Underserved Opportunities Program) – 6 week clinical student summer placement in a rural or medically underserved community, with the opportunity to complete a community health project. For 2011, 119 medical students completed R/UOP experiences; 18 of those students completed R/UOP experiences in Idaho.

**2nd Year** – at University of Washington (Seattle); integration of basic and clinical sciences/professional mentoring

**3rd Year** – Required clinical rotations (Seattle and WWAMI-wide)

- The Idaho Track – all 3rd year required rotations can be completed in Idaho
- WRITE (WWAMI Rural Integrated Training Experience) 5 months of 3rd year required clinical clerkships in one clinical location offered in the cities of Hailey, McCall and Sandpoint, Idaho

**4th Year** – Required and elective clinical rotations (Seattle and WWAMI-wide)

- The Idaho Track – ability to complete all 4th year required and elective rotations in Idaho

### **Graduate Medical Education – Residencies/Fellowships**

Idaho-based/University of Washington affiliated residency programs:

- Family Medicine – Family Medicine Residency of Idaho (FMRI), since 1975, located in Boise, Caldwell & Magic Valley.
- Family Medicine – ISU Family Medicine Residency since 1992, located in Pocatello
- University of Washington residency programs in Idaho:
- Internal Medicine - Boise Track located at the Boise VA Medical Center since 1977; Boise-based UWSOM residency approved to begin July, 2011
- Pediatrics – 2-month rotations located at Pocatello Children’s Clinic in Pocatello since 1972
- Psychiatry – Idaho Advanced Clinician Track, an integrated psychiatry residency based in both Seattle and Boise since 2006
- Sports Medicine and HIV Primary Care Fellowships offered through Family Medicine Residency of Idaho in Boise

### **Community Outreach Programs**

- Idaho AHEC (Area Health Education Center)
- R/UOE (Rural/Underserved Observation Experience – 3-day physician observation experience coordinated through Idaho WWAMI and Area Health Education Center which takes place the summer before the student begins medical school.
- Mini-Medical School – in its 9th year, a collaborative effort between Idaho Universities, UWSOM and community physicians to offer a 4-week long series of educational lectures focusing on a medical problem or body system.
- Mini Medical School Video Library <http://www.uidaho.edu/boise/wwami/mini-medicalschool2011>

### **WWAMI Results: 515 Idaho WWAMI graduates in practice**

- Return rate: 254/515 (49%) Idaho WWAMI practicing or have practiced in Idaho (National Average: 39%)
- Return on Investment: 372/515 (72%) total regional WWAMI graduates practicing or have practiced in Idaho

### **Financial Support of WWAMI**

- FY 2012 State appropriations - \$3,451,600.
- FY 2011 Contract dollars spent in Idaho – \$1,790,882.
- % of FY 2011 State appropriations spent in Idaho – 53%
- FY 2011 average State support per student per year - \$41,877 (↓4%)
- FY 2011 Average student paid tuition/fees per year - \$23,049 (↑10%) (Average: public - \$25,286; private - \$42,399)

### **Research:**

- In FY11, UI WWAMI faculty earned \$4 million in new funding from NIH, to advance biomedical research in infectious and genetic diseases, and to build biomedical research capacity across all ten of Idaho’s colleges and universities.

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## **MONTANA WWAMI Fact Sheet**

### **Medical Student Education**

- 1st Year – Montana State University-Bozeman for basic sciences/introduction to clinical medicine
- 2nd Year – University of Washington (Seattle) for integration of basic and clinical sciences/colleges
- 3rd Year- Approximately one hundred and ten students will have participated in required clerkships in MT in 2010-2011. Number of clinical faculty in Montana is approximately 290. The Montana 3rd year required clerkships: **Family Medicine**-Billings, Havre, Missoula, Whitefish

**Internal Medicine**-Billings, Dillon, Missoula **Pediatrics**-Great Falls, Billings, Missoula **Surgery**-Billings, Missoula **Psychiatry**-Billings, Missoula **OB/GYN**-Billings, Bozeman, Havre, Libby, Missoula **WRITE** (WWAMI Rural Integrated Training Experience) – Butte, Dillon, Lewistown, Libby, Helena, Miles City, Shelby

- **4th Year** – Required and elective clinical rotations (Ability to do all 4th year rotations in Montana are under development): **Neurology**- Billings, Great Falls, Missoula **Chronic Care/Rehab** – Billings; **Anesthesia** - Missoula, Billings; **Dermatology** – Billings; **Family Medicine Subl** – Billings; **Nephrology** – Billings; **Ophthalmology** – Missoula; **Orthopedics** – Billings; **Otolaryngology** – Missoula; **Radiology** – Billings; **Rural Surgery** - Lewistown, Libby; **Urology**-Billings

**Pre-Med** The Montana Pre Medical Conference was held October 8, 2011 in Bozeman. Approximately one hundred participants attended the event. The next conference will be fall 2013.

#### **Graduate Medical Education – Residencies**

- Montana Family Medicine Residency – Billings - 8 residents per year, 70% of grads remain within the state
- Additional GME offerings under consideration.

#### **WWAMI Results: 545 Montana WWAMI graduates in practice**

- Return rate - 219/545 (40%) practicing or have practiced in Montana
- Return on investment - 304/545 (56%) graduates from all WWAMI states practicing or have practiced in Montana

#### **Financial Support of WWAMI**

- FY 2011 state appropriations- \$3,646,177 (UW: \$2,958,843; MSU: \$687,334)
- FY2011 amount of total expenditures spent in Montana - \$1,795,521 (49%)
- FY2011 average state funding per student per year - \$44,209
- FY2010 average Montana WWAMI medical school debt per student: \$138,461
- FY2010 National Average: \$136,833 per student – publicly funded school; \$157,919 per student-private

#### **Research**

- WWAMI is involved in the UW Institute of Translational Health Sciences and was awarded a supplemental grant to increase translational and clinical research capacity in Montana and throughout the WWAMI region.
- Faculty at Montana State University conducts biomedical research which is funded by the NIH, NSF, and NASA.
- WWAMI is engaged in healthcare workforce research.

#### **Community Outreach**

- Montana AHEC (Area Health Education Center) *To improve access to quality healthcare by addressing the primary workforce needs, in rural and underserved areas, through medical, community and academic partnerships.* In the past year Montana AHEC has:
  - Continued development of the regional AHEC centers, in Dillon, Billings (opened 2007), Missoula (2008), and the Northcentral region (2009)
  - Continued affiliation with the UWSOM
  - Provided financial support to health careers students engaging in extended rural rotations
  - Collaborated on three major conferences on rural health, health and prevention, and increasing the number of American Indians/Native Alaskans in health professions
  - Prepared a study of Montana's Primary Care Workforce and allied health workforce, with presentations to the Montana Legislature
  - Developed a partnership with Health Occupations Students of America to expand health careers education and greatly expanded K-12 outreach programs
  - Supported R/UOP (Rural/Underserved Opportunities Program), a one-month opportunity

- for students to spend in a rural or medically underserved community.
- Placed 15 Montana WWAMI Students and 9 WWAMI students from other states in Montana rural and underserved rotations.
- Established a Montana Recruitment Collaborative
- Created the Montana Rural Health Initiative, a social networking project for community wellness initiatives
- Provided extensive technical support to develop Montana's health information exchange
- Created a student internship program for medical, health science, and engineering students Conducted Community Health Service Development assessments with 17 critical access hospitals over the past 3 years

## **WYOMING WWAMI Fact Sheet**

### **Completing an M.D. through the Wyoming-WWAMI Program**

1st Year – University of Wyoming (Laramie) for basic sciences/introduction to clinical medicine

2nd Year – University of Washington (Seattle) for integration of basic and clinical sciences

3rd Year – Required clinical rotations (WWAMI-wide)

- The Wyoming clerkships are: IM in Sheridan, Jackson and Douglas; FM in Buffalo, Torrington and Cheyenne; OB/GYN in Rock Springs and Cheyenne; Pediatrics in Cheyenne; Surgery and Psychiatry in Casper.
- WRITE (WWAMI Rural Integrated Training Experience) - 5 months in Powell, WY
- WRITE (WWAMI Rural Integrated Training Experience) – 5 months in Lander, WY

4th Year – Required and elective clinical rotations

- Emergency Medicine & Rural Surgery are available in Wyoming

### **Pre-Med**

- Medical College Admission Test (MCAT) Prep Course (Spring 2011) enrolled 15 students

### **Graduate Medical Education – Residencies/Fellowships**

- Wyoming based/University of Washington affiliated
  - Family Medicine – Cheyenne and Casper
- University of Washington residencies in Wyoming
  - Psychiatry – 2-month rotations in Cheyenne

### **WWAMI Results: Wyoming WWAMI graduates have completed training**

- As of October 2011, 183 students started medical school through WWAMI Wyoming, 111 students graduated from the University of Washington, 55 students are eligible for practice, and 57 have returned to the State of Wyoming to practice (67% return rate to date)

### **Research**

- WWAMI supports regional research efforts such as NIH funded research programs initiated through the College of Health Science at the University of Wyoming
- WWAMI is a member-supporter of the Institute for Translational Health Sciences (ITHS)

### **Community Outreach**

- Wyoming AHEC (Area Health Education Center) Mission: to increase access to quality health care and to use educational methods as an incentive to attract and retain health care providers in areas of need with a focus on community/ academic partnerships, and interdisciplinary training opportunities. In the past year Wyoming AHEC has:
  - Facilitated student involvement in community volunteer projects through the Community Health Advancement Program (CHAP)
  - Offered inter professional courses to health careers students

- Provided financial support to health careers students engaging in extended rural rotations
- Provided financial support to numerous health professions conferences in Wyoming
- Distributed educational materials on mental health issues to primary care providers
- Collaborated with Wyoming community colleges and high schools to encourage students into health careers
- Maintained a web resource for Wyoming students and health professionals
- Supported R/UOP (Rural/Underserved Opportunities Program) – One month opportunity for students to spend in a rural or medically underserved community and complete a community service project. For 2010, 118 out of 216 medical students completed an R/UOP experience. This figure includes 7 of the 16 first-year Wyoming students.

## **INTERSTATE AGREEMENTS FOR DENTAL SCHOOL TRAINING**

There are 15 states, including Delaware, that do not have a dental school: Alaska, Arkansas, Delaware, Hawaii, Idaho, Kansas, Maine, Montana, New Hampshire, New Mexico, North Dakota, Rhode Island, South Dakota, Vermont, and Wyoming.

Byck, et al. report that eighteen dental schools in thirteen states participate in some form of an interstate agreement for dental school training.<sup>13</sup> The agreements have various levels of formality ranging from formal interstate agreements to collegial arrangements based on historic relationships. In 2000, 53% of dental school enrollees from states that did not have a dental school itself enrolled in schools covered by an interstate agreement with their home state. The agreements primarily provide for tuition fees at in-state rates vs. out-of-state rates.

One interstate agreement provides an example: There is a formal agreement between the states of Kansas and Missouri that includes dental school training. There is no dental school or optometry school in Kansas; there is no architecture school in Missouri. The reciprocal agreement provides that Kansas residents who are admitted to dental school or optometry school in Missouri and Missouri residents who are admitted to architecture school in Kansas receive a waiver of the out-of-state portion of tuition, thereby paying the equivalent of in-state tuition, a significant savings. The overall agreement seeks an approximate balance of the total amounts of the reciprocal waivers between the two states. It provides for 85 Kansas residents at the University of Missouri at Kansas City School of Dentistry.<sup>14</sup> (UMKC School of Dentistry also has smaller, less formal arrangements for students from Arkansas, Hawaii, and New Mexico.)

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<sup>13</sup> "Dental Student Enrollment and Graduation: A Report by State, Census Division, and Region", by Gayle R. Byck, Linda A. Kaste, Judith A. Cooksey, and Chiu-Fang Chou, Journal of Dental Education, 70 (10), October 2006, 1023=37.

<sup>14</sup> Information provided by University of Missouri at Kansas City School of Dentistry; Kansas City, MO; John W. Killip, DDS, Associate Dean for Student Programs; [killipj@umkc.edu](mailto:killipj@umkc.edu); 816-235-2094 and Jeffrey Primos, Business Manager, [primosj@umkc.edu](mailto:primosj@umkc.edu).

## **OTHER INTERSTATE AGREEMENTS: WICHE**

The Western Interstate Commission on Higher Education (WICHE) is an agreement among 15 member states intended to improve access to college programs for their residents. (The WICHE States are Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming.) In addition, the states conserve resources when every state does not provide every program.

Each state determines the level of support that it wishes to provide. The support can vary by program and by institution. The number of persons supported and the funding can and does vary also. Generally, the support results in lesser costs to the student equal to some or all of the out-of-state portion of tuition fees.

WICHE has several programs, including undergraduate college education and health care professional education. The professional education program covers professional degrees in dentistry, allopathic medicine, osteopathic medicine, physician assistant, physical therapy, occupational therapy, optometry, pharmacy, podiatry, and veterinary medicine.

## **CONTACTS WITH THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES**

1. National Center for Health Workforce Analysis, Health Resources and Services Administration, U.S. Department of Health and Human Services; Christina Hosenfeld; [chosenfeld@hrsa.gov](mailto:chosenfeld@hrsa.gov); 301-443-9257

Ms. Hosenfeld reported that there is currently no national compilation of recruitment and retention programs in the various states. Further, there is no plan to develop such a compilation. She referenced the 3RNet program for recruitment and retention in rural areas.

In addition, Ms. Hosenfeld identified several private organizations involved with health care workforce studies:

- Center for Health Workforce Studies, University of Albany, Albany, NY
- Sheps Center, University of North Carolina, Chapel Hill, NC
- Center for the Health Professions, University of California at San Francisco, San Francisco, CA
- WWAMI Regional Information Center, University of Washington, Seattle, WA
- Center for Workforce Studies, American Association of Medical Colleges, Washington, DC

2. Bureau of Clinician Recruitment & Service, Health Resources and Services and Administration, U.S. Department of Health and Human Services; Philip M. Budashewitz, Director, Office of Policy and Program Development; [pbudashewitz@hrsa.gov](mailto:pbudashewitz@hrsa.gov); 301-443-1372

Mr. Budashewitz reported that there are no current or planned national studies or databases with recruitment retention initiatives.

### **3RNET**<sup>15</sup>

3RNet - The National Rural Recruitment and Retention Network is made up of organizations such as State Offices of Rural Health, primary care offices, AHECs, university programs, state-based non-profit organizations and primary care associations. These organizations help physicians and health professionals with recruitment and retention to rural and underserved communities throughout the country.

Each organization has information supporting physician and health care recruitment for rural and underserved communities in their respective states or territories. They will be able to assist medical and health professionals and their families identify the resources necessary to meet the personal and professional requirements they seek.

### 3RNet: Medical School Loan Repayment Programs: A Brief Summary<sup>16</sup>

Medical school loan forgiveness programs exist to support recruitment and retention of physicians and other healthcare professionals who are considering practicing in underserved communities. There are a variety of programs, which are tied to a commitment to serve in a practice over a period of time, usually a minimum of two years. The intent is to assist physicians and other healthcare professionals with debt relief while encouraging them to not only practice in underserved communities, but to stay in the community.

Federal and state loan repayment programs are restricted to U.S. citizens, but community-based programs generally welcome foreign medical graduates.

3RNet members are excellent resources since they are aware of federal, state, and local programs, which is important since regulations for one program may prohibit the use of another.

Medical school loan repayment programs for physicians and other healthcare professionals are available through several mechanisms.

1. There are four types of programs:
  - a. Loan for service (used for those who are trainees);
  - b. Loan repayment (used for those who have completed their traineeships);
  - c. Scholarships, and
  - d. Stipend programs
2. Virtually all programs are competitive—if recruiters and/or employers imply that such an award is guaranteed it probably is a community-based program, and these offers should be received in writing;
3. Most of the programs are free from income taxation, but it is wise to

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<sup>15</sup> <https://www.3rnet.org/aboutus/>, August 17, 2012.

<sup>16</sup> <https://www.3rnet.org/aboutus/loanrepayment.aspx>, August 17, 2012.

check with an accountant for the status of a particular program. This is especially important with in-house programs;

4. Most of the program contracts initially are for two, and typically they are renewable in two year increments;
5. Penalties for default are generally severe.

## APPENDIX

This Appendix contains scans of selected articles and reports from the University of Washington, the University at Albany, SUNY, the University of California at San Francisco, and the Association of American Medical Colleges. Summaries of the reports are contained in the main body of this report. The following reports are provided:

- “Regional Solutions to the Physician Workforce Shortage: The WWAMI Experience”. By Tom E. Norris, John B. Coombs, Peter House, Sylvia Moore, Marjorie D. Wenrich, and Paul G. Ramsey. Academic Medicine, 81 (10) October 2006, pp. 857862.
- “Retention of New Physicians after Completing Training in New York in 2010” by David P. Armstrong, Gaetano J. Forte, and Jean Moore, Center for Health Workforce Studies, School of Public Health, University at Albany, State University of New York, December 2010.
- “Fewer New Physicians Choose Community-based Primary Care” by David P. Armstrong, Gaetano J. Forte, and Jean Moore, Center for Health Workforce Studies, School of Public Health, University at Albany, State University of New York, October 2011.
- “Retention of New Physicians after Completing Training in New York” David P. Armstrong, Gaetano J. Forte, and Jean Moore, Center for Health Workforce Studies, School of Public Health, University at Albany, State University of New York, June 2012.
- “Rural and Urban Physicians in New York” by David P. Armstrong, Gaetano J. Forte, and Jean Moore, Center for Health Workforce Studies, School of Public Health, University at Albany, State University of New York, July 2012.
- “State Responses to Health Worker Shortages: Results of 2002 Survey of States” by J. Moore and L. Payne, Center for Health Workforce Studies, School of Public Health, University at Albany, State University of New York, November 2002.
- “California’s Health Care Workforce – Are We Ready for the ACA?” (Research Brief) by Tim Bates, Lisel Blash, Susan Chapman, Catherine Dower, and Edward O’Neil, Center for the Health Professions, University of California at San Francisco, December 1, 2011.
- “California’s Health Care Workforce: Readiness for the ACA Era” (Full Report) by Tim Bates, Lisel Blash, Susan Chapman, Catherine Dower, and Edward O’Neil, Center for the Health Professions, University of California at San Francisco, December 1, 2011.

- “2011 State Physician Workforce Data Book”. [Excerpts] Center for Workforce Studies, Association of American Medical Colleges, November 2011.
- “Recent Studies and Reports on Physician Shortages in the US”. Center for Workforce Studies, Association of American Medical Colleges, August 2011.