Averting a Crisis in HIV Care: A Joint Statement of the American Academy of HIV Medicine (AAHIVM) and the HIV Medicine Association (HIVMA) On the HIV Medical Workforce

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Background

HIV treatment is one of the most effective medical interventions available today thanks to medical research breakthroughs and the development of innovative drug therapies. The remarkable advances in the treatment of HIV have resulted in dramatic reductions in morbidity and mortality due to this life-threatening disease. One study estimated that combination antiretroviral therapy has provided an aggregate of 3 million years of extended life to Americans with AIDS since 1989.[i] Advances in care and treatment are ongoing and place great demands on HIV clinicians to stay abreast of the latest HIV diagnostics and treatments. The evolution of HIV care also has transformed the practice of HIV medicine such that it now often requires a hybrid of HIV expertise and sharp primary care skills to address the co-morbidities that people with HIV develop as they live longer with the disease. Serious co-morbidities, such as hepatitis C, lipid disorders, mental disorders and cancers are common among people with HIV and often require co-management with or referral to other specialists. Numerous studies document that HIV patients managed by an experienced HIV provider, typically defined according to patient management experience and continuing medical education, have significantly better treatment outcomes and receive more cost effective care. [ii] [iii] Similar findings have been reported for physician assistants and nurse practitioners, who also play a vital role in the delivery of HIV care.[iv]

Assessing the Current Situation

The current HIV medical workforce is largely composed of the first generation of HIV medical providers who entered the field when they were in training more than 20 years ago. The complexity of the disease appealed to medical providers from a diversity of medical backgrounds and specialties. Today, the HIV care system faces a serious crisis in care capacity as these clinicians retire without qualified recruits to take their place. Meanwhile, the number of people living with HIV in the U.S. continues to grow, with more than 55,000 new HIV infections occurring annually. Research suggests that the risk of death for people with HIV who delay treatment is 94% higher than those who initiate HIV treatment earlier.[v] An important effort is underway to implement routine HIV testing broadly throughout the U.S. in order to identify the more than 20 percent of HIV-infected persons who are unaware of their status and to help more people benefit from earlier access to care. With the growing number of people living with HIV, a failure to promptly address HIV medical workforce issues could lead to the collapse of the HIV care system – risking lives and the public health of communities across the country.

The quantitative data that could paint a conclusive picture of the HIV medical workforce situation nationally is currently incomplete. However, surveys conducted by our organizations reveal some concerning trends:

- The American Academy of HIV Medicine (AAHIVM) carried out a November 2008 survey of its membership, including credentialed-providers and student members, with a sample size of over 400 clinicians and students. Survey results revealed that roughly one-third of current providers are in the last quarter of their careers and plan to retire within the next 10 years; a majority is concerned about pending shortage of HIV providers; more than 90 percent have seen an increase in HIV patient load over the last two years. Among the student members, there is a medical student willingness to work in underserved and/or urban areas; however, there is great concern about acquired student debt. More than 85 percent of the students replied that a government student loan repayment program would influence their decision to pursue a career in HIV medicine.

- In the summer of 2008, the HIV Medicine Association (HIVMA) - and the Forum for Collaborative Research conducted a survey of Ryan White Part C-funded HIV programs to evaluate workforce and care capacity issues. Seventy percent of the 363 clinics responded, with more than 40 percent of the respondents being located in the Southern U.S. Nearly 70 percent of programs reported difficulty recruiting HIV clinicians. A lack of qualified HIV clinicians and reimbursement were identified as the major barriers to recruiting and retaining HIV clinicians. A significant majority of programs reported an increase in patients over the previous three years with a mean increase of 29 percent.

What We are Doing

AAHIVM and HIVMA have a history of working together to address the medical workforce issues that are vital to maintaining a robust HIV care system. The organizations began advocating in 2006 for federal funding to support a national study of the HIV medical workforce to fully evaluate the extent of the problem, to identify areas in greatest need and to determine the barriers to retaining and recruiting HIV clinicians. In addition to advocating federal interventions, our groups as membership organizations have undertaken a number of steps to help mitigate the looming HIV workforce problem, to encourage students and newly trained clinicians to enter the field of HIV medicine, and to provide state-of-the-art clinical resources and education to the existing HIV medical providers.

In 2007, HIVMA created the Minority Clinical Fellowship program to offer Latino/a and African American physicians the opportunity to gain clinical experience in HIV care while working with underserved populations. The program has awarded eight fellowship grants since 2007, and all of the graduates continue to work in HIV medicine. HIVMA also has been working with the American Board of Internal Medicine (ABIM) and American Board of Medical Specialties (ABMS) to create a focused practice recognition designation in HIV medicine for internists and hopes to work with other boards to create a similar designation. HIVMA also develops clinical practice guidelines, sponsors the HIV track at the Annual Meeting of HIVMA and the Infectious Diseases Society of America and maintains a definition for identifying experienced HIV medical providers.

AAHIVM has also undertaken efforts to increase the numbers of providers entering and remaining in HIV practice. MD, DO, nurse practitioner (NP) and physician assistant (PA) students have been encouraged to join the Academy with a complimentary membership with an eye toward engaging these students in educational opportunities and providing exposure to HIV medicine. Additionally, AAHIVM awarded six individual scholarships (named for the organization's late founder, Dr. Scott Hitt), offering fellows sophisticated clinical exposure to HIV). AAHIVM also continues to provide cutting-edge, on-line and live continuing medical education for HIV providers throughout their careers. Finally, the AAHIVS HIV Specialist™ program is now in its seventh year of existence, recognizing and identifying physicians, NPs and PAs as credentialed HIV Specialists (now numbering over 2,000 nationally) by way of a minimum active patient case-load, a minimum number of HIV-related continuing medical education credits, and a rigorous biennial exam that incorporates the latest science in HIV care. There is also a clinical consult arm of the credentialing program which is targeted at lower-volume providers looking to enhance their knowledge of HIV care and provides access to technical support from more experienced providers.

In spring of this year, 2009, HIVMA and AAHIVM formed a joint task force on HIV workforce issues. We held a series of meetings with members that represented the diversity of HIV medical providers in the U.S. with respect to specialty training, practice setting and geography. The discussions focused on identifying the issues currently facing the HIV workforce, as well as the challenges we face in the near future. A variety of proposals to address those issues were considered by the group, and consensus was reached. We then developed this joint policy statement on workforce issues, including recommendations that address each of those issues. The Board of Directors of the HIV Medicine Association and the American Academy of HIV Medicine endorsed the recommendations.

What Policy Makers Can Do

Ensuring an adequately-supplied and well-trained workforce is a critical component of the health care system. Strengthening the pipeline for qualified HIV medical providers takes time, with interventions targeted at students emerging from medical training yielding results years down the road. It is critical to act now and to employ a multi-faceted approach to attract clinicians to HV medicine and retain those who are currently in the field.

Congressional and Administration action on health care reform has the power to significantly affect the HIV workforce. We strongly support expanding health care coverage to improve early and reliable access to lifesaving health care for the more than one million people living with HIV in the U.S. However, expanding coverage without increasing HIV medical provider workforce capacity will only exacerbate the current shortage of expert care.

Considering these factors and the significant federal investment in HIV care, we urge Administration officials, Congressional policy makers, and Agency staff to take action. The following recommendations should be incorporated into health care reform; initiatives addressing broader primary care workforce shortages, the federal appropriations process, and the National AIDS Strategy.

Issue #1: Securing National Data on the State of the HIV Medical Workforce

Background:
Information available on nationwide trends do not address HIV care practitioners separately from primary care or other specialties, but it is clear that we face a serious shortage of primary care providers.[vi] The Institute of Medicine has raised concerns about the capacity of the medical workforce to respond to infectious diseases generally.[vii] Data on the current HIV medical workforce is critical to understand the depth of the problem in order to respond appropriately.

Recommendation:
Authorize and federally fund a major national study of the HIV medical workforce (including physicians, nurse practitioners, and physician assistants) to assess the capacity of the HIV workforce to respond to the medical needs of persons living with the disease on a regional and national basis, evaluate reimbursement through Medicaid and other payers, and evaluate the impact of HIV provider shortages on patient care outcomes.

Specific Steps:

1. Authorize and fund a national, quantitative study of the HIV medical workforce.
2. Document models and best practices for delivering HIV care so that mechanisms can be developed to support all effective models of care delivery.

Issue #2: Attracting and Recruiting New HIV Clinicians

Background:
Preliminary surveys of existing HIV providers and anecdotal data strongly suggest that incentives are needed to foster a pipeline for new HIV clinicians. It is important for these interventions to be initiated in tandem with subsequent recommendations to retain the current workforce through improved reimbursement and reduced administrative burden. Data from the HIVMA survey of Ryan White Part C clinics suggest that a majority of Part C-funded clinics are struggling to recruit new HIV providers. Funding challenges, coupled with increased caseloads and complex patient care, do not make HIV medicine an attractive career choice for newly trained clinicians. Remuneration for the provision of HIV care is insufficient, and medical student debt is burdensome. In a 2009 AAHIVM survey of HIV practitioners, it was found that debt level for medical students ranged from $75,000 to $200,000. In a similar 2004 survey conducted by HIVMA, it was found that the average medical student debt level was $102,000.

The National Health Service Corps (NHSC)is a federal structure for medical student loan forgiveness. NHSC recruits post-graduate trainees (residents and fellows) to work in medically underserved communities. Roughly 50 percent of program participants continue working in underserved communities for their entire careers.[viii] Many clinics receiving Ryan White Part C dollars are already located in designated Health Manpower Shortage Areas.

Recommendation:

New and innovative incentives are important to enhance the pipeline for the next generation of HIV care providers. Student loan forgiveness is vital to support HIV medical providers interested in pursuing careers in HIV medicine who otherwise could not afford to do so. Given the disproportionate impact of HIV disease on underserved populations living in urban and rural areas, the NHSC offers an existing federal structure that can be expanded and overlapped with HIV clinics to open a pathway for loan forgiveness.

Specific Steps:

1. Offer loan forgiveness opportunities to clinicians willing to provide HIV care in underserved communities.
2. Designate Ryan White funded clinics as NHSC-eligible sites similar to the designation granted to community health centers and federally-qualified health centers in underserved settings.

Issue #3: Building the HIV Medical Workforce Pipeline

Background:
The first generation of HIV clinicians was introduced to HIV medicine during their medical training or early careers, when they were taking care of patients who were hospitalized with a deadly but medically-intriguing infectious disease later identified as HIV/AIDS. In addition to being attracted to the intellectual rigor of combating the virus, HIV medicine became a cause for the first generation of clinicians and researchers entering the field in the 1980s, who were motivated to serve the marginalized patient groups that were largely affected by HIV disease. Today, the remarkable revolution in HIV care keeps HIV patients with access to health care out of the hospital, leaving most medical students and residents without adequate exposure to the evaluation and management of people living with HIV during their training. In a survey of medical residents from four primary care specialties, only 67 percent reported feeling prepared to treat people with HIV. The residents who had worked in underserved areas were more likely to feel competent managing HIV care. [ix] Since much of the complex and interesting decision-making for HIV medicine now occurs in outpatient settings, it is important to provide students and residents with opportunities to provide HIV care in these settings.

Recommendation:
Now is a critical time to build a stable and robust HIV clinician pipeline by creating opportunities for medical students and residents to engage in the longitudinal care of patients with HIV in an outpatient or community-based setting. For primary care practitioners interested in pursuing HIV medicine, it is important to offer longer-term, intense clinical training opportunities HIV medicine. Targeted fellowships in HIV medicine have been shown to increase HIV medical provider supply at the state level.[x] These are critical steps for attracting clinicians-in-training to HIV medicine and to building the expertise and experience of those interested in working in the field. In addition, to the steps identified below, it is important for changes to be considered with regard to medical school requirements to provide opportunities for medical residents to complete their outpatient clinic requirement in HIV clinics where they also would gain significant primary care experience.

Specific Steps:

1) Expand opportunities for medical students to pursue clinical fellowships in HIV medicine as part of their training. As one example, the Doris Duke Charitable Foundation's Clinical Research Fellowship has provides an effective model to expose medical students at Johns Hopkins to HIV medicine in their early training.
2) Support clinical training opportunities for primary care clinicians and satellite learning and consultation through teleconferences and web-based programs to increase competence and confidence.
3) Expand outpatient opportunities for medical and family practice residents; this will not only enhance their understanding and competence in managing patients with HIV, but will also reinforce their generalist training as much HIV care is rendered in the setting of the overall management of adults.

Issue #4: Recruiting Minority HIV Medical Providers

Background:

The dearth of minority medical providers is particularly pertinent to the HIV medical community because of the disproportionate impact that HIV disease has on African American and Latino/a populations. In 2007, African Americans comprised 48 percent of reported AIDS cases in the U.S., and Latinos comprised 19 percent, despite representing 12 and 15 percent of the US population, respectively.[xi] Studies document improved outcomes when patients see physicians of the same race,[xii] including for those with HIV.[xiii] However, among the HIVMA membership only 4 percent are African American and 6 percent are Latino, and among the AAHIVM membership only 8 percent are African American and 7 percent are Latino. HIV clinics and programs find it particularly challenging to recruit medical providers that mirror their African American and Latino/a patient populations and to recruit Spanish-speaking clinicians.

Recommendation:

Efforts to address the primary care workforce and HIV medical workforce shortages must also prioritize medical workforce diversity. Special attention should be paid to areas of medicine, such as HIV disease, where minority populations are heavily represented.

Specific Steps:

1) Support full funding of the Health Professions Title VII and VIII programs. These programs play a vital role in increasing the number of racial and ethnic minorities that pursue careers as health care providers and support primary care practitioners and nurses in pursuing careers in underserved areas.
2) Target HIV training and loan forgiveness programs to minority medical providers.

Issue #5: Building on Current Federal Resources

Background:

Within the current Ryan White structure, the regional AIDS Education and Training Centers (AETCs) serve as an "on-the-ground" mechanism for training healthcare workers providing

HIV care. The regional AETC programs currently focus on providing educational opportunities to clinicians already working in HIV-care settings[9] and are generally not incentivized or directed to work to attract new clinicians to HIV medicine. AETCs play an important role in supporting the education and training of HIV health care providers and are uniquely suited to provide opportunities for attracting primary care and other clinicians to HIV medicine.

Recommendation:
Now is a critical time to shore up the AETC program with sufficient resources to help the current workforce maintain their skills and expertise, and also evaluate the programs that are most effective. Expanding the mission of the AETCs to also address workforce capacity issues by developing programs to draw new clinicians into the field of HIV medicine is crucial. The role of the regional AETCs in workforce expansion should be maximized by targeting resources to attracting medical students and residents to HIV medicine.

Specific Steps:

1. Sustain and enhance the AETC program by increasing funding in fiscal year 2010.
2. Maintain the proposal included in the President's Budget for $4 million in new money to be directed to the AETCs to support training for primary care practitioners.
3. Expand the mission of the AETC to help grow the HIV clinician pipeline by targeting medical residents, students and primary care practitioners.
4. Fund the AETCs to develop programs to expose medical students and residents to HIV care and treatment.

Issue #6: Broader Health Care System Issues Critical to Addressing HIV Medical Workforce Needs

Background:
Many Congressional leaders recognize the importance of addressing primary care workforce shortages as a key component of health care reform. Expanding access to affordable, meaningful health care coverage is vital but will be fruitless if we do not have an adequate primary care workforce and a sufficient supply of qualified HIV medical providers.

Recommendation:
As Congress works to shape health care legislation, it is vital that the reformed health care system support the HIV physicians – many serving as primary care providers – who treat HIV/AIDS patients. Issues of reimbursement, recruitment, and support of the primary care workforce should incorporate issues in each of these areas that specifically apply to the HIV

[9] The AETC program also supports several national centers that serve as a critical source of information for HIV providers and non-HIV providers. These include a National HIV Telephone Consultation Service, National Clinicians' Post-Exposure Prophylaxis Hotline, The National Perinatal HIV Consultation and Referral Service. More information available at http://www.nccc.ucsf.edu/.

medical providers. Health system reforms directed at effective management of chronic conditions, such as through medical homes, must also be applied to HIV disease.

Specific Steps:

1. Ensure that HIV medical providers are recognized in the context of addressing broader workforce shortages.
2. Include the HIV workforce in proposals for reimbursement, recruitment, and support of the medical workforce generally.

Issue #7: Developing Reimbursement Mechanisms that Support the Cost of HIV Care

Background:

HIV care that is delivered by experienced HIV providers has been proven to lead to better outcomes for patients and to result in cost savings to the health care system. Different models for managing the care of patients with HIV have evolved to ensure patients have access to quality HIV care. Under one model, HIV clinics serve as medical homes with the HIV medical provider serving as the HIV and primary care provider. Another effective model is for an HIV physician to co-manage the patient with a primary care physician. In rural areas or other areas with low HIV prevalence rates, an HIV physician may serve as a consultant to the primary care provider. It is vital that reimbursement systems adequately support all models of HIV care delivery.

In a recent survey of Ryan White Part C-funded clinics, the clinics reported reimbursement as being one of the biggest challenges to recruiting HIV clinicians.[xiv] A majority of our patients rely on Medicaid or Medicare for access to care and under the current reimbursement levels many of our HIV clinics operate at annual deficits that are growing and leading to cuts in services, staff and clinic hours.[xv] [xvi] [xvii] In a study conducted at the University of Alabama in Birmingham, physician reimbursement totaled a modest $359 per year per patient or only 2 percent of total patient costs for healthier patients. The study assumed ideal conditions, including reimbursement rates equal to Medicare levels and 100 percent successful bill collection.[xviii]

Recommendation:

Addressing medical provider reimbursement issues for primary care physicians and other specialists that practice HIV medicine under Medicaid and Medicare is critical to sustaining the HIV care system. Medicare reimbursement must be reformed to recognize the value and importance of primary care and other cognitive specialties that practice HIV medicine.

Specific Steps:

1) Address significant disparities in reimbursement across Medicaid programs and with other payers.
2) Risk-adjust reimbursement rates to ensure that access to primary care and specialty care is not compromised for individuals with complex, resource intensive conditions, such as HIV disease.

3) Support HIV programs that are serving as "medical homes" by reimbursing programs for coordinating care and providing sufficient resources to support quality improvement and the adoption of health information technology.
4) Ensure that practitioners who are dependent on reimbursement for evaluation and management service (E&M) are appropriately balanced in comparison to reimbursement for procedure-based specialties.

Issue #8: Reducing Administrative Burden on Medical Practices

The administrative and data reporting requirements under federal programs, such as Ryan White and Medicare Part D, have grown exponentially, while fiscal resources to support these requirements have decreased. The requirements are contributing to the cost of HIV care and draining valuable HIV medical provider resources. One study conducted in an HIV clinic concluded that the cost in personnel time was valued at $21.40 per prior authorization, or about one-third of the reimbursement level for an intermediate level office visit.[xix] A similar study conducted among psychiatrists following the implementation of Medicare Part D found that on average they spent 45 minutes performing administrative duties for every one hour of direct patient care spent. The study focused on patients dually eligible for Medicaid and Medicare.[xx] The administrative burden reduces the medical provider's time to practice HIV medicine while also reducing overall job satisfaction and discouraging clinicians from entering primary care fields, such as HIV medicine.

Recommendation:
A critical component of health care reform must be the reduction of the administrative burden associated with practicing medicine that detracts from the delivery of high quality HIV care. Data collection should support quality improvement and outcome-driven care. Collective reforms in all sectors should strive to focus on meaningful administrative and data requirements that redirect valuable clinical resources to promoting quality care.

Specific Steps:
1) Develop standard administrative processes, guidelines and forms for utilization management techniques such as prior authorization for federally supported programs like Medicare Part D.
2) Streamline federal grant application and funding cycles for HIV programs within and across federal agencies.
3) Reduce the grant application requirements for federal non-compete grant applications. Currently, grant applications are required to submit a full grant application every year despite the initial five-year approval.
4) Eliminate duplicate reporting required under the Ryan White program.
5) Target resources for health information technology development to HIV practices and programs.

Conclusion

Our health care system is at a crossroads. We are optimistic about the opportunities that this critical juncture offers for expanding access to meaningful health care coverage and improving access to care for those living with HIV. As policy-makers seek to expand health

care coverage, steps must be taken to foster a robust and well-trained HIV medical workforce so that all individuals living with HIV disease in this country have the chance to benefit from the expert HIV care that can help them live long and, productive lives.

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[i] RP Walensky et al. The survival benefits of AIDS treatment in the United States. *The Journal of Infectious Diseases*. Published online June 1, 2006.

[ii] Bozzette SA, Joyce G, McCaffrey DF, et al. Expenditures for the care of HIV-infected patients in the era of highly active antiretroviral therapy. N Engl J Med. 2001;344(1):817-823.

[iii] Landon BE, Wilson IB,, Wenger NS, et al. Specialty training and specialization among physicians who treat HIV/AIDS in the United States. J Gen Intern Med. 2002;17(1):12-22.

[iv] Wilson, et al. Quality of HIV Care Provided by Nurse Practitioners, Physician Assistants, and Physicians. Ann of Inter Med 2005:143:729-736.

[v] Kitahta, M et al. Effects of Early versus deferred antiretrovrial therapy for HIV on survival. N Engl J Med;360:18.

[vi] The Complexities of Physician Supply and Demand: Projections Through 2025. AAMC. November 2008.

[vii] Institute of Medicine. Ensuring an Infectious Disease Workforce: Education and Training Needs for the 21st Century - Workshop Summary. Released. February 24, 2006.

[viii] National Health Service Corps. About NHSC. Facts and Figures. Sidebar. June 3, 2009. Online at http://nhsc.hrsa.gov/about/facts.htm

[ix] Weissman JS, Campbell EG, Gokhale M, Blumenthal D. Residents' preference and preparation for caring for underserved populations. J Urban Health. 2001 Sep;78(3):535-49.

[x] Carrascal AF, Montesano-Ostrander K, Rukeyser J, Agins BD. Training HIV clinicians and building a clinical workforce: the experience in New York State. AIDS Public Policy J. 2005 Fall-Winter;20(3-4):102-7.

[xi] Centers for Disease Control and Prevention. HIV/AIDS Surveillance by Race/Ethnicity (through 2007). Online at www.cdc.gov/hiv/topics/surveillance/resources/slides/race-ethnicity/index.htm. Accessed May 26, 2009.

[xii] Cooper LA et al. Patient-centered communication, ratings of care, and concordance of patient and physician race. Ann Intern Med, 139(11):907-15.

[xiii] King W et al. Does racial concordance between HIV-positive patients and their physicians affect the time to receipt of protease inhibitors? J Gen Intern Med, 19(11):1146-1153.

[xiv] *Weddle, A. Presentation:* HIVMA-FCHR Survey on Workforce Needs. Online at www.hivforum.org. Accessed May 27, 2009.

[xv] Kaiser Family Foundation. Medicaid and HIV. February 2009. Online at www.kff.org. Accessed May 27, 2009.

[xvi] Kaiser Family Foundation. Medicare and HIV/AIDS Fact Sheet. February 2009. Online at www.kff.org. Accessed May 27, 2009.

[xvii] Kitahata MM, Van Rompaey SE, Dillingham PD, et al. Primary care delivery is associated with greater physician experience and improved survival among persons with AIDS. J Gen Intern Med. 2003;18:95-103.

[xviii] Chen RY, et al.. Distribution of health care expenditures for HIV-infected patients. Clin Inf Dis 42:1003-1010, 2006.

[xix] Raper J, Lin H, Willig J, Mugavero M, Allison J, Saag M. The hidden costs of prior authorization: uncompensated effort for medical providers. In: Program and abstracts of the 48th Annual ICAAC/IDSA 46th Annual Meeting; October 25-28, 2008; Washington, D.C. Abstract H-448.

[xx] *Wilk, JE et al. Medicare Part D Prescription Drug Benefits and Administrative Burden in the Care of Dually Eligible Psychiatric Patients Psychiatr Serv 59:34-39, January 2008.*