HOD ACTION: Council on Medical Education Report 5 filed.

REPORT OF THE COUNCIL ON MEDICAL EDUCATION

CME Report 5-A-17

Subject: Options for Unmatched Medical Students

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Policy D-310.977 (15), "National Resident Matching Program Reform," directs our American Medical Association (AMA) to "discuss with the National Resident Matching Program, Association of American Medical Colleges, American Osteopathic Association, Liaison Committee on Medical Education, Accreditation Council for Graduate Medical Education, and other interested bodies potential pathways for reengagement in medicine following an unsuccessful match and report back on the results of those discussions." This report is in response to that directive.

This policy was adopted at the 2015 Annual Meeting of the AMA House of Delegates. Testimony at A-15 before Reference Committee C reflected growing concern over the issue of unmatched medical students, with the continued growth in enrollments in medical schools. The AMA is committed to continued study and close monitoring of this issue—through the efforts of the Council on Medical Education and Academic Physicians Section, among others—to ensure the highest possible return on the nation's investment in our future physician workforce.

This report focuses primarily on those Match participants who are U.S. medical school seniors at allopathic, MD-granting programs accredited by the Liaison Committee on Medical Education. Graduates of osteopathic medical schools (DOs) can participate in both the osteopathic Match as well as the NRMP Match, and as such the data available on match rates of DOs versus MDs are not directly comparable. That said, we have included segments in this report noting some of the Match issues specific to DOs as well as to International Medical Graduates (IMGs).

BACKGROUND: THE HISTORICAL STABILITY OF MATCH RATES

Council on Medical Education Report 3-A-16, "Addressing the Increasing Number of Unmatched Medical Students," was adopted as amended by the AMA House of Delegates at its 2016 Annual Meeting (see Policy D-310.977). This report responded to Policy D-310.977 (14), "National Resident Matching Program Reform," which calls for the AMA to "study, in collaboration with the Association of American Medical Colleges, the National Resident Matching Program, and the American Osteopathic Association, the common reasons for failures to match." Some of the information in that report is relevant to this document and is incorporated where appropriate.

A key point is the historical stability in Match rates for U.S. allopathic medical school seniors. As noted by the authors of research published in the December 8, 2015 issue of *JAMA*,[1] "The percentage of US MD graduates entering GME the year of graduation has remained stable during the past decade despite an increase in the number of graduates."

These conclusions were highlighted in an interview with the article's lead author, Henry Sondheimer, MD.[2] "[I]n spite of the growth in U.S. MD graduates, the percent of graduates not beginning their GME the year they graduated has remained very stable around 3%." He adds that, after following the graduates for eight to 10 years after graduation, "more than 99% enter GME or

begin practice in some other way"—for example, those with a joint medical/dental degree may obtain a dental residency slot versus a similar position in a medical residency.

WHY STUDENTS FAIL TO MATCH

Data provided by medical schools to the Liaison Committee on Medical Education (LCME) offer insight into the reasons students did not match into a residency program. The LCME Part II Annual Medical School Questionnaire from 2015-2016 (with responses from 142 schools; 100 percent response rate) shows that academic shortcomings and inadequate Match preparation are two key reasons for failure to match.

The LCME data show that 18,442 potential 2016 graduates accepted appointments to first-year residency programs. An additional 473 potential 2016 graduates did not enter residency training in 2016-2017, for the following reasons:

#	%	Reason
273	57.7%	Did not find a residency position
75	15.9%	Research/pursuing additional degree or training
75	15.9%	Other
45	9.5%	Changing careers
5	1.1%	Family responsibilities/maternity/child care

Of these 473 potential 2016 graduates, medical schools provided data on the 332 individuals who sought but did not find a residency position:

Students who did not find a residency position:

#	%	Reason
203	61.1%	The student's academic performance (eg, clinical grades) and/or USMLE scores were below the norm
55	16.6%	The applications were limited to one specialty and did not include backup plans ("plan B" specialty)
24	7.2%	The number of applications was (relatively) limited
21	6.3%	There were nonacademic flags in the MSPE (eg, professional behavior)
29	8.7%	Reason not reported or unknown to school

Not having a backup plan ("plan B" specialty) may result from candidates' failure to fully and realistically evaluate their chances for matching into a given specialty field and/or residency program. Students who have not achieved high United States Medical Licensing Examination (USMLE) scores or class ranking may not be competitive applicants for such programs, and are likely to remain unmatched if their rank order lists include only highly competitive specialties. Indeed, as the authors of a recent study in *Academic Medicine* note, "U.S. seniors' Match outcomes may be affected by applicant characteristics that negatively influence their selection for interviews, and their difficulties may be exacerbated by disadvantageous ranking behaviors."[3]

FUTURE PLANS OF STUDENTS WHO FAIL TO MATCH

As to the plans of the 332 students who were unmatched in 2016, the LCME Questionnaire provides additional insight, as shown below (Note: One or more options could be marked for an individual student; total responses were 553):

#	%	Future Plans
246	44.4%	Will search for a residency position for entry in 2017
120	21.7%	Will continue searching for a residency position in 2016
120	21.7%	Will seek employment, such as a research position
32	5.8%	Will seek an additional degree
5	0.1%	Will seek a career outside of medicine
30	5.4%	Plans unknown by school

For these unmatched students, the odds of a future successful Match are not favorable. Historically, fewer than 50 percent of U.S. medical school graduates who did not match in their initial attempt obtained a position in a succeeding year's Match. This finding reinforces the need for individualized counseling by medical schools as well as rational and realistic decisions by medical students prior to entering their first match.

The 2016 GME compendium from the AMA[4] outlines options for unmatched medical students to consider, as well as the challenges/opportunities that these options may entail. These include a program-specific fifth year of medical school or research/clinical program or pursuing a master's degree. Other potential options are seeking employment in a research, clinical, or teaching environment; obtaining volunteer work; or pursuing a nonclinical career in such fields as public health and service, public policy and government, communications and journalism, informatics, pharmaceutical research, and consulting.[5] Some unmatched medical school graduates turn to other health professions, to become a nurse, nurse practitioner, or physician assistant.

Finally, an often unstated truism is that the Match serves as an additional filter for those medical school graduates who, due to poor academic performance or concerns about professional behavior, are not well-equipped to become competent, caring health care professionals. These numbers are small, to be sure—which reflects well on the medical school admissions process—but they represent a beneficial outcome, in that a given individual who may not be suitable to become a fully licensed practicing physician is removed from the system.

DOs AND THE MATCH

The American Association of Colleges of Osteopathic Medicine (AACOM) has been tracking Match rates for graduates of osteopathic medical schools (DOs) and communicating with its colleges on responses to the issue (personal communication, December 2016). Much of the discussion in the DO profession centers around Commission on Osteopathic College Accreditation (COCA) Standard 8 on GME Outcomes, which requires an osteopathic medical college to provide a retrospective GME accountability report on GME placement. Specifically, Standard 8.3[6] requires osteopathic medical colleges to report on:

> … the number of graduates entering GME, the positions available in the COM's affiliated OPTI [Osteopathic Postdoctoral Training Institution], the historic percentage of match participation (AOA, NRMP, military, etc.), final placement, the number/percentage of eligible students unsuccessful in the matches, and the residency choices of its graduates.

Guideline: COMs should strive to place 100% of their graduates into GME programs and devote the necessary resources to obtain that goal.

Further, Standard 8.5.a requires colleges to "annually report publicly, beginning with the 2013-2014 academic year, from the previous four academic years, the following data…on its website, in its catalog, and in all COM promotional publications that provide information about the COM's education for prospective students…. The number of students from each graduating class who applied to and obtained or were offered placement in a graduate medical education program accredited by the American Osteopathic Association or the Accreditation Council for Graduate Medical Education or the military, and the number of students from each graduating class who applied to and were unable to obtain placement in an accredited graduate medical program."

COCA policy also states that, if an osteopathic medical school does not match 98 percent of students on its three-year rolling average, it will not be granted the same overage allowance for class sizes.

IMGs AND THE MATCH

IMGs face additional challenges in securing a residency program placement. Foreign national IMGs, in particular, must surmount visa and immigration hurdles, aside from the need to obtain a residency slot. Furthermore, as they lack the institutional support and counsel of a domestic medical school's student affairs office, IMGs may have additional difficulties in learning about and employing successful Match strategies.

Helping to fill this gap are programs like the IMG Advisors Network (IAN) of the Educational Commission for Foreign Medical Graduates (ECFMG) and the AMA International Medical Graduates Section (AMA-IMGS). The AMA-IMGS, for example, advocates for the interests of IMGs and helps minimize the time it takes for IMGs to obtain visas and obtain credentials verification from educational and training programs in other countries. The section also provides model guidelines for establishing observership programs, to assist IMGs who wish to observe clinical practice in a U.S. setting as a preparatory step for residency application and placement. The AMA-IMGS has also collaborated with the ECFMG on webinars related to aiding IMGs as they seek a residency program slot.

The work of the AMA in this regard is important, in that the health workforce impact of IMGs vis-à-vis the Match cannot be understated. Foreign national IMGs, for example, are more likely to practice in underserved urban and rural communities.[7] If the increasing numbers of U.S. graduates displace IMGs from the Match over the next 10 or more years, current health workforce shortages affecting underserved populations could be exacerbated.

TOOLS AND INITIATIVES TO SUPPORT INFORMED MATCH CHOICES

As noted previously, the available data regarding unmatched medical students demonstrate that student behaviors likely contribute to the problem. In this regard, students bear the responsibility to make good choices before and during the match process, and medical schools and medical education organizations bear the responsibility to ensure that students are well-prepared and well-informed about realistic career path options and strategies for success.

At the organizational level, the AMA has been a leader in providing data/information to medical students and medical schools to inform Match decisions. One AMA tool for helping ensure a more successful match (not just to residency but to one's career as a physician) is the AMA's Career

Planning Resource, which includes guidance on applying for residency, choosing a specialty, interviewing for residency, writing a C.V., and finding residency programs (through the AMA Residency and Fellowship Database, FREIDA Online).

Another useful tool is the AAMC's Careers in Medicine (CiM) online guide, which helps students make strategic decisions about residency training and beyond, and provides self-assessment tools and specialty-specific data to inform those decisions.

The AAMC has also embarked on its Optimizing Graduate Medical Education initiative, which encompasses development of resources and tools to support all parties involved in a learner's transition to residency. Goals of the Transition to Residency component of the initiative (aamc.org/initiatives/optimizinggme/phase-two/) include helping residency program applicants, program directors, and medical school advisors make more strategic decisions. Some of the specific projects supporting the Transition to Residency effort include the following:

- Development of a research study to evaluate the use of a standardized video interview as a potential tool in the residency application and selection process.
- Analysis of a national survey of residency program directors to understand their applicant evaluation and selection process, and pain points experienced in that process.
- Creation of an overview of interview practices and processes, to support program directors and allow a more efficient and informative interview for applicants and interviewers.
- Recommendations for a new format for the Medical Student Performance Evaluation (MSPE), which allows for a holistic approach to both evaluating and reviewing an applicant.

Meanwhile, the key theme for the May 2017 meeting of the National Resident Matching Program (NRMP) was "The Unmatched Applicant," intended to generate discussion about the medical education continuum (http://nrmpconference.org/themes.html). Themes covered include the following:

- Does the MSPE meet program director needs?
- How can the Match be flexible in accommodating competency-based programming?
- Ensuring readiness for residency: Innovations from the field.
- Goodness of fit: How can medical schools and GME programs quell application overload?
- What applicants need to inform specialty/program selection.
- Program director panel to explore criteria used to interview and rank applicants.
- What tools do program directors need/want to improve the selection process?
- Enhancing unmatched students' applications for next year's Match.
- Alternatives to clinical medicine: What options exist?
- Candid career counseling: When and how to guide academically underachieving students toward non-medical professions.
- IMG success rate: Trends over time and impact on training programs.
- Workforce: Current status and future trends.
- Resident resilience: Tips and tools to keep young physicians engaged for a long career.

SUMMARY AND POTENTIAL FUTURE RESEARCH

This report outlines a number of key points related to unmatched medical students, including the long-term stability of Match rates, common reasons for an unsuccessful match, options for students who do not match, the special Match concerns of DOs and IMGs, and tools/initiatives from

medical schools and medical organizations (including the AMA) that are essential to ensuring an effective, efficient, and equitable Match process that balances the interests of applicants and programs and promotes rational, strategic decision making by all parties.

In general, medical students need up-front disclosures on Match potential and a realistic assessment of career possibilities. Students should be provided accurate data about graduation and Match rates, as well as projected Match rates for the institution, when they apply to a given medical school. From a systemic perspective, according to the authors of a 2016 article in *Academic Medicine*, potential improvements to the residency application and Match process include limiting the number of applications as well as "increasing the amount and/or types of information provided by applicants and by residency programs; shifting to holistic review, with standardization of metrics for important attributes; and fundamental reanalysis of the residency application process."[8]

A number of variables contribute to the complex supply/demand equation of Match rates, physician workforce, and the need for health care services; these areas offer important venues for research:

- The continued growth in the number of U.S. medical schools (both allopathic and osteopathic) and increased enrollments in existing schools.
- Limited growth in graduate medical education due to caps in federal funding, and the potential for further reductions in government funding levels, particularly with calls on the rise for more transparency in and accountability for public funding of GME.[9]
- Growth in the number of U.S. citizen international medical graduates (IMGs) who graduate from non-LCME-accredited medical schools and seek to enter residency programs in the United States—along with foreign national IMGs.
- Increased competition among medical students for certain specialty fields of medicine that offer attractive compensation and "controllable lifestyle."
- The large and increasingly burdensome debt load many medical graduates face, which may affect students' decisions.
- Changes in medical practice (for example, increased use of electronic medical records) and new clinical and administrative developments and technologies (i.e., telemedicine), which can lead to greater (or, reduced) efficiencies.
- Physician practice patterns, including the move towards employee settings (versus practice as a solo practitioner); cessation of and reentry into clinical practice, due to raising a family or other personal concerns; and earlier (or later) retirement from clinical practice.
- Increases in the number of non-physician clinicians (physician assistants, nurse practitioners[10]) that are providing health care and other services.
- The number of people seeking health care services, and the services needed—particularly as our population ages and the burden of chronic diseases and conditions grows.
- The health workforce impacts of students' specialty and program choices in the Match.
- The geographic distribution of physicians and the availability of health care services in underserved areas, both rural and urban.
- The impact of applicants' race/ethnicity on Match outcomes.

The Council on Medical Education will continue to monitor this issue and report back to the HOD as needed, and to work with other key stakeholders, as noted in this report, to ensure that our nation's investment in the future physician workforce is fully realized.

APPENDIX: RELEVANT AMA POLICIES

D-310.977, National Resident Matching Program Reform
Our AMA:
(1) will work with the National Resident Matching Program to develop and distribute educational programs to better inform applicants about the NRMP matching process;
(2) will actively participate in the evaluation of, and provide timely comments about, all proposals to modify the NRMP Match;
(3) will request that the NRMP explore the possibility of including the Osteopathic Match in the NRMP Match;
(4) will continue to review the NRMP's policies and procedures and make recommendations for improvements as the need arises;
(6) does not support the current the "All-In" policy for the Main Residency Match to the extent that it eliminates flexibility within the match process;
(7) will work with the NRMP, and other residency match programs, in revising Match policy, including the secondary match or scramble process to create more standardized rules for all candidates including application timelines and requirements;
(8) will work with the NRMP and other external bodies to develop mechanisms that limit disparities within the residency application process and allow both flexibility and standard rules for applicant;
(9) encourages the National Resident Matching Program to study and publish the effects of implementation of the Supplemental Offer and Acceptance Program on the number of residency spots not filled through the Main Residency Match and include stratified analysis by specialty and other relevant areas;
(11) will work with the Association of American Medical Colleges (AAMC), American Osteopathic Association (AOA), American Association of Colleges of Osteopathic Medicine (AACOM), and National Resident Matching Program (NRMP) to evaluate the current available data or propose new studies that would help us learn how many students graduating from US medical schools each year do not enter into a US residency program; how many never enter into a US residency program; whether there is disproportionate impact on individuals of minority racial and ethnic groups; and what careers are pursued by those with an MD or DO degree who do not enter residency programs;
(12) will work with the AAMC, AOA, AACOM and appropriate licensing boards to study whether US medical school graduates and international medical graduates who do not enter residency programs may be able to serve unmet national health care needs;
(13) will work with the AAMC, AOA, AACOM and the NRMP to evaluate the feasibility of a national tracking system for US medical students who do not initially match into a categorical residency program;
(14) will study, in collaboration with the Association of American Medical Colleges, the National Resident Matching Program, and the American Osteopathic Association, the common reasons for failures to match; and
(15) will discuss with the National Resident Matching Program, Association of American Medical Colleges, American Osteopathic Association, Liaison Committee on Medical Education, Accreditation Council for Graduate Medical Education, and other interested bodies potential pathways for reengagement in medicine following an unsuccessful match and report back on the results of those discussions.

H-200.955, Revisions to AMA Policy on the Physician Workforce
It is AMA policy that: (1) any workforce planning efforts, done by the AMA or others, should utilize data on all aspects of the health care system, including projected demographics of both providers and patients, the number and roles of other health professionals in providing care, and

practice environment changes. Planning should have as a goal appropriate physician numbers, specialty mix, and geographic distribution. (2) Our AMA encourages and collaborates in the collection of the data needed for workforce planning and in the conduct of national and regional research on physician supply and distribution. The AMA will independently and in collaboration with state and specialty societies, national medical organizations, and other public and private sector groups, compile and disseminate the results of the research. (3) The medical profession must be integrally involved in any workforce planning efforts sponsored by federal or state governments, or by the private sector. (4) In order to enhance access to care, our AMA collaborates with the public and private sectors to ensure an adequate supply of physicians in all specialties and to develop strategies to mitigate the current geographic maldistribution of physicians. (5) There is a need to enhance underrepresented minority representation in medical schools and in the physician workforce, as a means to ultimately improve access to care for minority and underserved groups. (6) There should be no decrease in the number of funded graduate medical education (GME) positions. Any increase in the number of funded GME positions, overall or in a given specialty, and in the number of US medical students should be based on a demonstrated regional or national need. (7) Our AMA will collect and disseminate information on market demands and workforce needs, so as to assist medical students and resident physicians in selecting a specialty and choosing a career.

H-305.929, Proposed Revisions to AMA Policy on the Financing of Medical Education Programs
It is AMA policy that: (1) Since quality medical education directly benefits the American people, there should be public support for medical schools and graduate medical education programs and for the teaching institutions in which medical education occurs. Such support is required to ensure that there is a continuing supply of well-educated, competent physicians to care for the American public. (2) Planning to modify health system organization or financing should include consideration of the effects on medical education, with the goal of preserving and enhancing the quality of medical education and the quality of and access to care in teaching institutions are preserved. (3) Adequate and stable funding should be available to support quality undergraduate and graduate medical education programs. Our AMA and the federation should advocate for medical education funding. (4) Diversified sources of funding should be available to support medical schools' multiple missions, including education, research, and clinical service. Reliance on any particular revenue source should not jeopardize the balance among a medical school's missions. (5) All payers for health care, including the federal government, the states, and private payers, benefit from graduate medical education and should directly contribute to its funding. (6) Full Medicare direct medical education funding should be available for the number of years required for initial board certification. For combined residency programs, funding should be available for the longest of the individual programs plus one additional year. There should be opportunities to extend the period of full funding for specialties or subspecialties where there is a documented need, including a physician shortage. (7) Medical schools should develop systems to explicitly document and reimburse faculty teaching activity, so as to facilitate faculty participation in medical student and resident physician education and training. (8) Funding for graduate medical education should support the training of resident physicians in both hospital and non-hospital (ambulatory) settings. Federal and state funding formulas must take into account the resources, including volunteer faculty time and practice expenses, needed for training residents in all specialties in non-hospital, ambulatory settings. Funding for GME should be allocated to the sites where teaching occurs. (9) New funding should be available to support increases in the number of medical school and residency training positions, preferably in or adjacent to physician shortage/underserved areas and in undersupplied specialties.

D-305.967, The Preservation, Stability and Expansion of Full Funding for Graduate Medical Education
… 3. Our AMA will actively seek congressional action to remove the caps on Medicare funding of GME positions for resident physicians that were imposed by the Balanced Budget Amendment of 1997 (BBA-1997). ... 11. Our AMA: (A) recognizes that funding for and distribution of positions for GME are in crisis in the United States and that meaningful and comprehensive reform is urgently needed; (B) will immediately work with Congress to expand medical residencies in a balanced fashion based on expected specialty needs throughout our nation to produce a geographically distributed and appropriately sized physician workforce; and to make increasing support and funding for GME programs and residencies a top priority of the AMA in its national political agenda; and (C) will continue to work closely with the Accreditation Council for Graduate Medical Education, Association of American Medical Colleges, American Osteopathic Association, and other key stakeholders to raise awareness among policymakers and the public about the importance of expanded GME funding to meet the nation's current and anticipated medical workforce needs. ... 13. Our AMA will continue to strongly advocate that Congress fund additional graduate medical education (GME) positions for the most critical workforce needs, especially considering the current and worsening maldistribution of physicians. ... 19. Our AMA will continue to work with stakeholders such as Association of American Medical Colleges (AAMC), ACGME, AOA, American Academy of Family Physicians, American College of Physicians, and other specialty organizations to analyze the changing landscape of future physician workforce needs as well as the number and variety of GME positions necessary to provide that workforce. … 22. Our AMA will advocate for the appropriation of Congressional funding in support of the National Healthcare Workforce Commission, established under section 5101 of the Affordable Care Act, to provide data and healthcare workforce policy and advice to the nation and provide data that support the value of GME to the nation.

D-305.992, Accounting for GME Funding
Our AMA will encourage: (1) department chairs and residency program directors to learn effective use of the information that is currently available on Medicare funding accounting of GME at the level of individual hospitals to assure appropriate support for their training programs, and publicize sources for this information, including placing links on our AMA web site; and (2) hospital administrators to share with residency program directors and department chairs, accounting and budgeting information on the disbursement of Medicare education funding within the hospital to ensure the appropriate use of those funds for Graduate Medical Education.

D-305.958, Increasing Graduate Medical Education Positions as a Component to any Federal Health Care Reform Policy
2. Our AMA will work with the Centers for Medicare and Medicaid Services to explore ways to increase graduate medical education slots to accommodate the need for more physicians in the US.

H-310.917, Securing Funding for Graduate Medical Education
Our American Medical Association will: (1) continue to be vigilant while monitoring pending legislation that may change the financing of medical services (health system reform) and advocate for expanded and broad-based funding for graduate medical education (from federal, state, and commercial entities); and (2) continue to advocate for graduate medical education funding that reflects the physician workforce needs of the nation.

REFERENCES

[1] Sondheimer HM, Xierali IM, Young GH, Nivet MA. Placement of US Medical School Graduates Into Graduate Medical Education, 2005 Through 2015. *JAMA*. 2015;314(22):2409-2410. Available at: http://jama.jamanetwork.com/article.aspx?articleid=2474417. Accessed April 10, 2017.

[2] Most Medical School Graduates Get The Resident Education Required For Licensure. MedicalResearch.com Interview with Henry Sondheimer, MD. Available at: http://medicalresearch.com/author-interviews/most-medical-school-graduates-get-the-graduate-education-required-for-licensure/19806/. Accessed April 10, 2017.

[3] Liang M, Curtin L, Signer M, Savoia M. Unmatched U.S. Allopathic Seniors in the 2015 Main Residency Match: A Study of Applicant Behavior, Interview Selection, and Match Outcome. *Academic Medicine*: November 29, 2016. Available at: http://journals.lww.com/academicmedicine/Abstract/publishahead/Unmatched_U_S__Allopathic_Seniors_in_the_2015_Main.98331.aspx. Accessed April 10, 2017

[4] "Compendium of graduate medical education initiatives" report. American Medical Association. 2016. Available at: savegme.org/sites/default/files/graduate-medical-education-compendium.pdf. Accessed December 13, 2016.

[5] Bumsted T, Schneider BN, Deiorio NM. Considerations for Medical Students and Advisors After an Unsuccessful Match. *Academic Medicine*, March 21, 2017. Available at: http://journals.lww.com/academicmedicine/Abstract/publishahead/Considerations_for_Medical_Students_and_Advisors.98256.aspx. Accessed on April 3, 2017.

[6] Accreditation of Colleges of Osteopathic Medicine: COM Accreditation Standards and Procedures. Standard 8.3, GME Outcomes (pp. 26-27). Available at: http://www.osteopathic.org/inside-aoa/accreditation/COM-accreditation/Documents/com-accreditation-standards-8-29-2016.pdf. Accessed December 12, 2016.

[7] International medical graduates in American medicine: Contemporary challenges and opportunities. AMA-IMG Section Governing Council, January 2013.

[8] Katsufrakis P, Uhler T, Jones L. , Lee D. The Residency Application Process: Pursuing Improved Outcomes Through Better Understanding of the Issues. Academic Medicine. November 2016;91(11):1483-1487. Available at: http://journals.lww.com/academicmedicine/Fulltext/2016/11000/The_Residency_Application_Process___Pursuing.12.aspx. Accessed December 13, 2016.

[9] Graduate Medical Education That Meets the Nation's Health Needs. National Academy of Medicine, 2014. Available at: http://iom.nationalacademies.org/Reports/2014/Graduate-Medical-Education-That-Meets-the-Nations-Health-Needs.aspx. Accessed April 10, 2017.

[10] Van Vleet A, Paradise J. Tapping Nurse Practitioners to Meet Rising Demand for Primary Care. Kaiser Family Foundation, January 20, 2015. Available at: http://kff.org/medicaid/issue-brief/tapping-nurse-practitioners-to-meet-rising-demand-for-primary-care/. Accessed February 2, 2016.