# Asano-Gonnella Center for Research in Medical Education and Health Care

## Annual Report
## *Academic Year 2025-2026*

## Sidney Kimmel Medical College at Thomas Jefferson University


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## Message from the Director, Dimitrios Papanagnou, MD, EdD, MPH

The Asano-Gonnella Center for Research in Medical Education and Health Care has a rich and distinguished legacy of advancing scholarship, informing educational practice, and contributing to our understanding of medical education. As we reflect on another productive year, I am reminded not only of the Center's remarkable contributions to medical education research, but also of the dedicated faculty, staff, and collaborators whose curiosity, commitment, and expertise continue to make this work possible.

The Center's legacy is rooted in a longstanding commitment to rigorous inquiry and meaningful impact. Established in 1970 by Dr. Joseph Gonnella, the Jefferson Longitudinal Study has served as a cornerstone of educational research, generating more than 200 peer-reviewed publications and providing invaluable insights into the quality and outcomes of medical education. Similarly, the Jefferson Scale of Empathy, under the stewardship of Dr. Mohammadreza Hojat, has achieved extraordinary international recognition, reaching more than 2,800 researchers across 95 countries, with translations into 65 languages. These enduring contributions reflect the Center's ability to ask important questions, generate meaningful evidence, and influence educational practice across institutions and borders.

This past year has been no exception. The Center has continued to advance a diverse portfolio of research and scholarship, supporting institutional initiatives related to learner assessment, teaching effectiveness, and the study of emerging technologies, including generative artificial intelligence, in medical education. This work has also extended internationally through ongoing health services research collaborations, including the continued application of the Maio criteria in Italy. We particularly celebrate Dr. Hojat's recognition with a Lifetime Achievement Award and his receipt of a $250,000 grant from the American Association of Colleges of Osteopathic Medicine to further advance the study of clinical empathy. We also recognize Dr. Rosie Frasso's continued leadership of The Qualitative Institute and the scholarly contributions and collaborations of Drs. Vittorio Maio and Aaron Douglas. These accomplishments represent only a portion of the important work undertaken by the Center's talented team.

As we celebrate these achievements, we must also look ahead. Medical education is experiencing a period of profound transformation. Rapid advances in artificial intelligence, evolving expectations of health professionals' roles and responsibilities, and increasingly complex health care environments are challenging our longstanding assumptions about how we teach, learn, assess, and practice. These changes invite us to ask new questions, critically examine established approaches and assumptions, and embrace innovation grounded in sound evidence and educational science.

The Center is uniquely positioned to help lead this work. Building upon decades of scholarship, methodological expertise, and meaningful collaboration, we have an opportunity to contribute to the next generation of medical education research while remaining steadfast in our commitment to improving educational and health care outcomes.

I am deeply grateful to our faculty, staff, collaborators, and institutional partners for their dedication and contributions. It is through their collective efforts that the Center's legacy continues to grow. I look toward the future with excitement and optimism, confident that our collective expertise, curiosity, and commitment to collaboration will position the Center to address emerging challenges, explore new opportunities, and help continue to shape the future of medical education research.

Dimitrios Papanagnou, MD, EdD, MPH

# Overview

The Asano-Gonnella Center for Research in Medical Education and Health Care provides methodological and technical support to faculty in evaluating students' knowledge, skills, and professionalism throughout the MD curriculum. The Center also provides the administration with information on metrics used to assess the effectiveness of policies related to admissions, the curriculum, and students' academic progress. Center faculty conduct medical education research focused on educational and patient outcomes, professionalism, and the development and improvement of assessment and educational tools. A major component of this work is the well-known Jefferson Longitudinal Study of Medical Education. Through this study, the Center annually collects information on students' future plans, attitudes, personal qualities, and perceptions of their medical education at Sidney Kimmel Medical College through on-line surveys. The study also includes assessments of graduates' clinical competence provided by residency program directors. Previously, the Center collected this information using its own rating form at the completion of the first year of residency. However, as a result of a recent contractual agreement with the Association of American Medical Colleges (AAMC), the Center has discontinued use of this form and is now obtaining data from AAMC Resident Readiness Survey, which provides information on the performance of Sidney Kimmel Medical College graduates during the first six months of residency. Beginning with next year's annual report, the Center will report findings from the AAMC Resident Readiness Survey. In addition, Center faculty collaborate with clinical and non-clinical Thomas Jefferson University faculty on research and scholarly activities aimed at identifying and addressing health disparities. These collaborations employ quantitative, qualitative, and mixed-methods approaches, with findings disseminated through peer-reviewed publications and presentations at national and international scientific meetings. The Center continues to receive external support for research in medical education, health services, and health policy.

## Medical Education

As of September 2026, the Jefferson Longitudinal Study database comprises academic and career outcome data for 15,019 Sidney Kimmel Medical College students and graduates since the entering class of 1964. (Figure 1, schematic of the Longitudinal Study.)

This database provides the College with vital information about intermediate and long-term curricular outcomes. For example, Exhibits 1-21 show an overview of medical education outcomes that we annually report by retrieving data from the Jefferson Longitudinal Study.

Exhibits 1-9 display information about our students before they enter medical school. Exhibits 10-14 show performance indicators during medical school and on national medical examinations, global ratings of clinical competence in core clerkships (Exhibit 10); comparisons of pass rates with those of all U.S. medical schools on the United States Medical Licensing Examinations (USMLE) (Exhibit 11); graduates' level of satisfaction with each year of medical school education (Exhibit 12); satisfaction with medical education as to preparing graduates for careers in medicine (Exhibit 13); and the pattern of on-time graduation, delayed graduation, transfer, and attrition (Exhibit 14).

Exhibits 15-19 include data collected after medical school, such as geographic location of first year residency training programs (Exhibit 15). Global ratings in four areas of clinical competence, provided by the

residency program directors, using our Postgraduate Rating Form for those graduates who granted us permission to collect such data are displayed in Exhibit 16. (For reference, a copy of the Postgraduate Rating Form is included at the end of this report.)

Program directors' ratings of graduates' ability to perform three roles of physicians (clinicians, patient educators, and health care resource managers) are depicted in Exhibit 17, and program directors' confirmation that the resident has qualities desirable in their own personal physicians is shown in Exhibit 18. Exhibit 19 displays the specialties of our graduates over three time periods. Board certification rates of our graduates by periods of graduation are shown in Exhibit 20. Also shown are current geographic locations of our living graduates in 2020 (Exhibit 21).

A total of 214 research studies based on the Jefferson Longitudinal Study have been published in peer-reviewed journals. A list of publications is available on our website: jls-publications-091625.pdf

In a book published in 2022 by Springer: "*Fifty years of findings from the Jefferson Longitudinal Study of Medical Education"* the abstracts of 204 articles from the Jefferson Longitudinal Study that had been published in peer-reviewed professional journals were assembled (Accessible from: https://doi.org/10.1007/978-3-030-85379-2 in peer-reviewed journals).

## Medical Education Research

- In a collaborative study with our Admissions Office, Center faculty examined predictive validity of the new MCAT sections' scores for predicting performance on the United States Medical Licensing Examinations (Steps 1, 2, and 3) as the criterion measures and compared predictive validity coefficients of the new MCAT with those from the previous version of the MCAT. Findings from the study show that new MCAT total scores have the same level of predictive power for student performance on the USMLEs. However, although new MCAT section scores have predictive power for student performance on the USMLEs, the predictive relationships differ between male and female students. This research study resulted in a publication published in April of 2025 in the journal of Teaching and Learning in Medicine (website: https://doi.org/10.1080/10401334.2025.2495353 )
- Dr. Douglas has started research for a second study on the validity of the new MCAT for predicting student performance on USMLE Step 1. The purpose of this study is to demonstrate the use of the Heckman selection model within a path analysis framework. MCAT data from applicants to Sidney Kimmel Medical College will function as the predictor variables while USMLE Step 1 data from those applicants who ended up studying at Sidney Kimmel Medical College will function as the criterion variable. This study will demonstrate how the Heckman selection model can be used when the criterion variable is censored due to selectivity of the admissions process. Estimates of the predictive value of the new MCAT scores would then be generalizable for all applicants, including applicants with missing USMLE Step 1 data because they never attended Sidney Kimmel Medical College.
- Center faculty produced data visualizations for the Medical Student Performance Evaluation reports that display students' performances in core clinical clerkships.
- Center faculty worked on the annual report on the Matchmaker Program for the Office of Student Affairs. The Office

of Student Affairs uses the annual Matchmaker report to counsel students about residency selection.

- The Center is providing the Sidney Kimmel Medical College Student Assessment Office assistance on research intended to investigate associations between student academic performance during medical school and Accreditation Council for Graduate Medical Education (ACGME) milestone evaluations during the first year of residency. A significant amount of data for this investigation comes from the Jefferson Longitudinal Study. The remaining data will come from ACGME. This national project is a collaborative effort between ACGME and several medical schools in the United States. As a subsequent local activity for this project, there is a focused collaboration between ACGME and Sidney Kimmel Medical College individually for the purpose of conducting outcome assessment and research, and the Center is helping the medical college with this activity as well. Sidney Kimmel Medical College's efforts for this project are being funded by the Stemmler Grant that was awarded in the spring of 2022.

- Dr. Douglas is collaborating on a research study with Dr. Aaron Kendrick, a recent Sidney Kimmel Medical College alumni, and is currently in residency at the University of Pittsburgh Medical Center. Dr. Kendrick initiated this study as a Scholarly Inquiry project during his undergraduate medical education studies at Sidney Kimmel Medical College. The purpose of the study is to investigate for differences in "ideal physician traits" between students pursuing in humanities research versus students pursuing traditional medical research at Sidney Kimmel Medical College. A manuscript for this study will be submitted for publication in a leading journal.

- In response to a request from Dr. Benard L. Lopez, who is the Senior Associate Dean for Diversity and Community Engagement, Dr. Douglas helped in the creation of Sidney Kimmel Medical College inclusion metrics by leveraging data from the AAMC Graduation Questionnaire. Dr. Douglas advised Dr. Anita Wilson as she conducted the recommended data analyses and created data visualizations for this effort.

Dr. Douglas is co-Principal Investigator for a multi-phase research project that is investigating potential ways artificial intelligence (AI) can improve assessment of medical student clinical note-taking skills. Key goals of this research are to 1.) investigate whether AI can reliably and validly measure the level of medical student clinical note-taking skill; 2.) compare the quality of AI vs. human scoring of medical students' clinical notes; 3.) create timely and useful AI-generated feedback regarding students' clinical note-taking; and 4.) leverage AI for creating clinical cases for Objective Structured Clinical Examination (OSCE) of students' clinical note-taking skills. The Center is providing the Sidney Kimmel Medical College Student Assessment Office assistance for this project, which also features opportunities for working with medical students who contribute to the research.

## Empathy Research

The Jefferson Scale of Empathy (JSE) continues to receive broad national and international attention. The JSE has been translated into 65 languages and used in 95 countries. Worldwide use of the JSE and translations are shown in Figure 2. The number of requests for permission to use the JSE by national and international researchers has been very strong over time (shown in Figure 3). In addition to 64 articles published by Hojat et al.: bibliography-hojat-

101226.pdf, publications by national and international researchers appeared in peer-reviewed journals (in English) in which the JSE was used. Over 680 articles are listed at the following link: jefferson-scale-empathy-bibliography-091225.pdf

Dr. Hojat was invited by the American Association of Colleges of Osteopathic Medicine (AACOM) to wrap-up Phase II of the Project in Osteopathic Medical Education and Empathy (POMEE), a landmark nationwide longitudinal study of changes in clinical empathy as students progress through medical school (from preclinical to clinical phase of medical school education). The study cohort included 5669 matriculants who entered U.S. colleges of osteopathic medicine in 2019-2020 academic year and were followed up from matriculation to graduation. Data collected from the beginning to the end of medical school education will be analyzed to examine positive or negative changes in clinical empathy in the study cohort, and associations of changes in clinical empathy with demographic variables, attitudes toward osteopathic medicine, emotional empathy, orientation toward interprofessional collaboration, lifelong learning, and burnout experiences will be addressed in univariate and multivariate statistical models. Also, reasons for changes in clinical empathy will be explored in this groundbreaking project.

Dr. Hojat completed revising and updating the third edition of his empathy book under a new title: "Clinical Empathy: The Heart of Patient Care" which is an expanded and updated edition of his 2016 book. The new edition was released in 2026 by Springer. Clinical Empathy: The Heart of Patient Care | Springer Nature Link

Dr. Hojat was nominated and selected as the winner of the Lifetime Achievement Award for his research in clinical empathy by the Stoneygate Centre for Empathic Healthcare, Leicester Medical School, College of Life Sciences, University of Leicester, in U.K. The award was given to him at the Global Empathy in Healthcare Network Symposium 2025, in September 2025 at the University of Leicester, U.K.

Dr. Hojat was invited to deliver a keynote speech in a virtual presentation on his nationwide research with medical students in the U.S. colleges of osteopathic medicine on clinical empathy at the Latin American Symposium on Empathy in Healthcare. He will present selected findings from his Project in Osteopathic Medical Education and Empathy (POMEE), Phase I in that symposium.

Dr. Hojat, in collaboration with Professor Stewart Mercer of the University of Edinburg in U.K., wrote a book chapter on *Empathy Measures in Healthcare* that will be published in 2027.

## Health Services Research

Center researchers have been involved in a major series of health services research projects conducted in collaboration with Thomas Jefferson University faculty, external institutions, and healthcare organizations.

Wirth funding from the Parma Local Health Authority, Center researchers designed, developed, and implemented a multi-year project aimed at improving the appropriateness of medication prescribing for older adults. In 2007, this project led to the development, through an expert-panel process, of the first Italian explicit list of potentially inappropriate medications (PIMs), known in the literature as the *Maio criteria*. The criteria have subsequently been updated four times, in 2011, in 2014, in 2017, and in 2020. The 2020 Maio criteria can be retrieved at the following URL: https://www.ausl.pr.it/azienda/elenco_farmaci/lista.aspx. Findings from several publications have demonstrated that this multi-year project initiative resulted in a

substantial reduction in PIM exposure and that the improvement was sustained even after the intervention ended.

Building on this collaboration, the Parma Local Health Authority asked Center researchers (PI: Dr. Maio) to participate in a 2-year project designed to support innovative, proactive clinical programs tailored to population groups with similar levels of health complexity. The project focuses on the development and validation of an instrument for population stratification based on patients' health risk using health data from primary care physicians. During the first phase, Center researchers used expert consensus methods and worked with a multidisciplinary panel from the Parma Local Health Authority to identify key health risk factors. Findings from this phase have been published in *BMC Primary Care*.

Center researchers also have an ongoing collaboration with the College of Nursing of Villanova University and the School of Nursing of Rutgers University on a funded study examining the impact of the COVID-19 pandemic on infection prevention and control departments, including staffing and resource availability. The PITA study is funded by the Agency for Healthcare Research and Quality (Award n. 1R01HS029023-01. PI: Monika Pogorzelska-Maziarz, PhD). Findings from the study were presented at the 2026 Academy of Managed Care Pharmacy (AMCP) Annual Meeting and at the 2026 ISPOR Annual International Meeting, and findings have also been published in the *American Journal of Infection Control*.

In collaboration with Dr. Wenyin Shi of the Department of Radiation Oncology, and Dr. Iyad Alnahhas of the Department of Neurological Surgery, Center researchers initiated a large population-based study using SEER-Medicare data. Thes study examined metabolic co-morbidities, including obesity, diabetes and hyperlipidemia, as well as the use of antihyperglycemic and lipid-lowering medications and their potential prognostic role in benign and malignant tumors of the central nervous system. Findings from this work have been published in *Neuro-Oncology Advances*.

A collaborative research initiative with the Department of Urology (Dr. Costas Lallas) has focused on comparative analyses of robotic-assisted laparoscopic approaches to radical and partial nephrectomy in patients with renal cancer. Findings from the radical nephrectomy study have been published in the *Journal of Robotic Surgery*, while findings from the partial nephrectomy study have been published in the *World Journal of Urology*. In addition, preliminary results from a cost-effectiveness analysis comparing robot-assisted and laparoscopic versus open partial nephrectomy for the treatment of renal cell carcinoma were presented at the 2026 ISPOR Annual International Meeting.

Center researchers have also collaborated with investigators from Università Cattolica del Sacro Cuore, Roma, Italy, on several projects. One study examined the performance of leading Large Language Models (LLMs) in providing information related to infection control and antibiotic use. Preliminary findings were presented in a podium presentation at the 18th European Public Health Conference in 2025. Findings from this work were subsequently published in *BMJ Health & Care Informatics and Public Health*.

A second collaborative study with investigators from Università Cattolica del Sacro Cuore examined long-term, state-level trends in influenza vaccination coverage among U.S. adults aged 65 years and older across 15 influenza seasons, from 2009/10 through 2023/2, with particular attention to the changes associated with the COVID-19 pandemic. Findings have been published in *Vaccine*.

A third collaborative study with investigators from Università Cattolica del Sacro Cuore, examined whether rural-urban

disparities are reflected in differences in nursing complexity at the time of hospital admission. Findings have been published in *Children.*

## Qualitative and Mixed Methods

The Center supports faculty, clinicians, educators, and scholars in integrating qualitative and mixed methods approaches into new and ongoing research. By amplifying the voices of patients, learners, and community members, these approaches provide critical context that complements and strengthens quantitative findings.

Dr. Frasso leads and collaborates on a wide range of interdisciplinary projects across the Jefferson enterprise and beyond. Her work brings together educators, nurses, psychologists, physicians, artists, economists, researchers, and community partners who share a commitment to rigorous, respectful, and engaging research methods. Current collaborations span neurology, surgery, hepatology, nephrology, emergency medicine, ophthalmology, psychiatry, family medicine, pediatrics, rehabilitation medicine, and other disciplines. She also partners with colleagues from Jefferson Libraries, Nemours, Wills Eye Hospital, Moss Rehabilitation Center, the Community Health Worker Academy, the Jefferson Collaborative for Health Equity, and Jefferson's East Falls campus, including the Architecture & Design Center and the Center for Immersive Arts.

Although these collaborations address diverse topics and settings, they are united by a common goal: centering the lived experiences of patients, community members, learners, and trainees to improve healthcare, education, and community outcomes.

One example is an arts-based participatory research project conducted with Loukia Tsafoulia, Severino Alfonso (CABE), Wendy Ross (Center for Autism and Neurodiversity), and members of the neurodiverse community. The project explored how neurodiverse individuals experience and navigate urban environments, highlighting both challenges and opportunities in everyday settings. The collaboration resulted in scholarly presentations as well as a short documentary film, whose trailer can be viewed here: https://jefferson.app.box.com/s/582nmb7gb9y2rdzxhpubcto0949iq46b

In fall of 2023, Dr. Frasso launched The Qualitative Huddle, a monthly space where qualitative researchers and those interested in qualitative work come together to learn new skills, share experiences, and ask questions of one another. Now in its fourth year, each session draws attendees (25 to 50) from across the Jefferson Health System and from Jefferson's many colleges.

The Qualitative Institute, a 3-day mini course, directed by Rosie Frasso, for over 15 years, was held in September of 2025. The event brought experts together from Thomas Jefferson University, The University of Pennsylvania, Drexel University, Temple University and the Children's Hospital of Philadelphia (CHOP). The attendees 70+ came from around the United States, and represented academic settings, non-profit organizations and government agencies as well as researchers focused on tribal health.

## Teaching

Center Faculty teach a series of lectures in the phase one curriculum including lectures on the Social Drivers of Health (SDOH), Public Health, and Research Design. Additionally, Center faculty collaborate with Megan Voeller, Sidney Kimmel Medical College, to run the Community Voices Series and accompanying journal club for students. The series provides students the opportunity to explore the SDOH with the help of community members who are experts by experience, that is, people living with SUD, housing and food insecurity, have

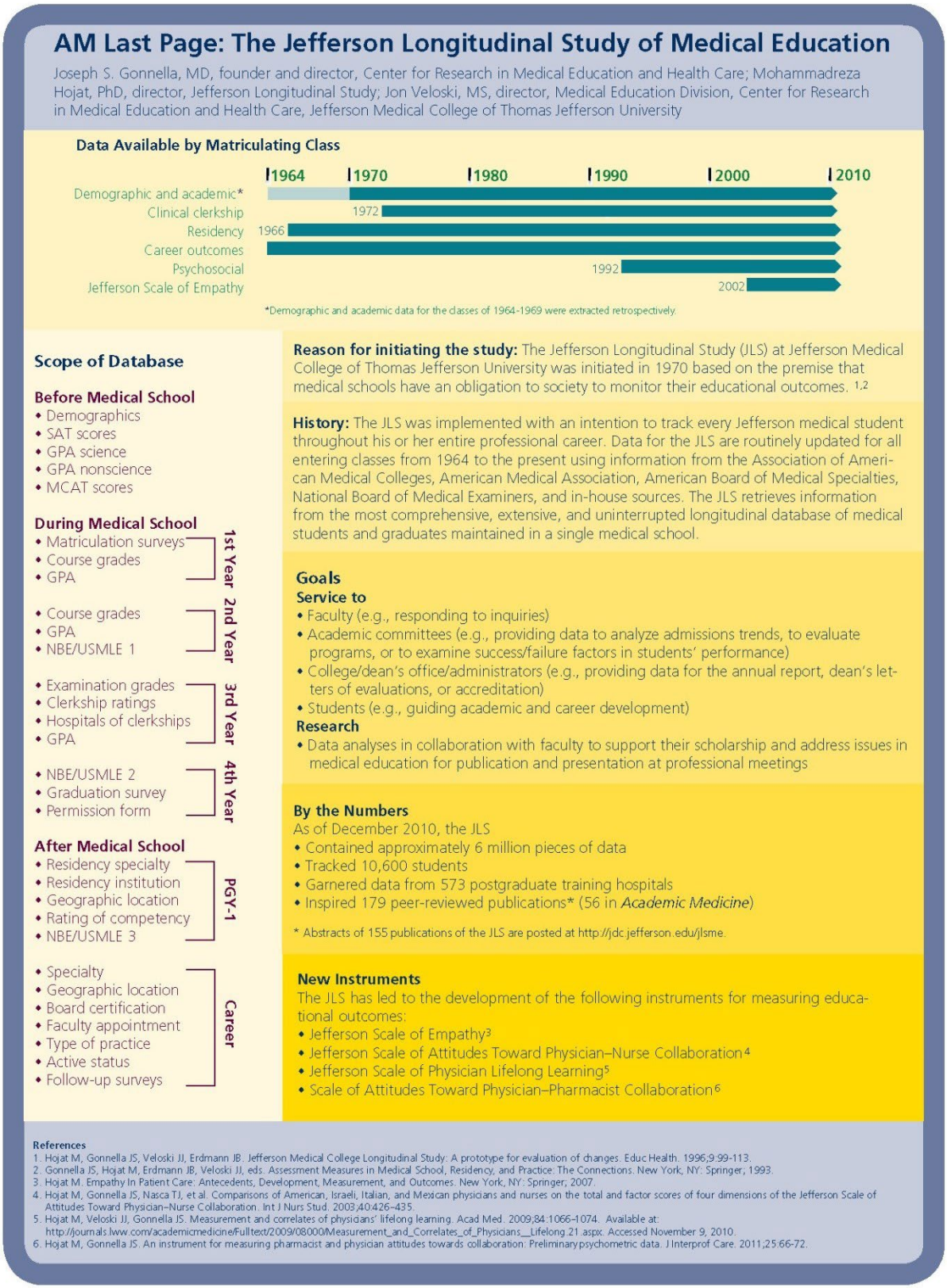
experienced racism and transphobia in the health system. Center faculty have served as guest lecturers at Università Cattolica del Sacro Cuore, Roma, Italy, the University of Pisa, the University of Parma, Italy, and a host of other regional and national venues including the Philadelphia Federal Reserve Bank and the Chicago Federal Reserve Bank, where they are embarking on a host of mixed methods projects to address the social determinants of health. Center faculty have also collaborated with Dr. Richard Derman, Associate Provost for Global Affairs at Thomas Jefferson University, to provide remote training for learners in India and onsite training for students visiting from KLE University in Belagavi, India.

## Mentorship

The Center continues providing opportunities for Jefferson students to increase and expand their knowledge and skills in health services research and expose students to rigorous research designs, that include quantitative, qualitative and mixed methods approaches. Vietbao Phan, first year Health Economics and Outcomes Research Fellows in the Jefferson College of Population Health, have worked with Center faculty on several research studies. In addition, Center faculty has worked with several doctoral students from the School of Nursing, the College of Population Health and from the SMART Lab PhD program on their dissertations, as well as with students in the Master of Public Health (MPH) program, the MD-MPH program and students in nursing, PA studies, and Applied Health Economic and Outcomes Research programs on a variety of capstone projects focus on health services, patient experiences and health disparities.

With the goal of supporting international education at Jefferson, through a partnership with Università Cattolica del Sacro Cuore, Roma, Italy, Dr. Maio was named the Jefferson recipient of 3-year Erasmus+ for Higher Education grant funded by the EU Program (8/1/2023-7/31/2026). The grant supports an education and training exchange program between faculty and students for our institution and Catholic University in Rome.

**Figure 1**



## AM Last Page: The Jefferson Longitudinal Study of Medical Education

Joseph S. Gonnella, MD, founder and director, Center for Research in Medical Education and Health Care; Mohammadreza Hojat, PhD, director, Jefferson Longitudinal Study; Jon Veloski, MS, director, Medical Education Division, Center for Research in Medical Education and Health Care, Jefferson Medical College of Thomas Jefferson University

### Data Available by Matriculating Class



*Demographic and academic data for the classes of 1964-1969 were extracted retrospectively.

### Scope of Database

**Before Medical School**
- Demographics
- SAT scores
- GPA science
- GPA nonscience
- MCAT scores

**During Medical School**

1st Year
- Matriculation surveys
- Course grades
- GPA

2nd Year
- Course grades
- GPA
- NBE/USMLE 1

3rd Year
- Examination grades
- Clerkship ratings
- Hospitals of clerkships
- GPA

4th Year
- NBE/USMLE 2
- Graduation survey
- Permission form

**After Medical School**

PGY-1
- Residency specialty
- Residency institution
- Geographic location
- Rating of competency
- NBE/USMLE 3

Career
- Specialty
- Geographic location
- Board certification
- Faculty appointment
- Type of practice
- Active status
- Follow-up surveys

**Reason for initiating the study:** The Jefferson Longitudinal Study (JLS) at Jefferson Medical College of Thomas Jefferson University was initiated in 1970 based on the premise that medical schools have an obligation to society to monitor their educational outcomes. [1,2]

**History:** The JLS was implemented with an intention to track every Jefferson medical student throughout his or her entire professional career. Data for the JLS are routinely updated for all entering classes from 1964 to the present using information from the Association of American Medical Colleges, American Medical Association, American Board of Medical Specialties, National Board of Medical Examiners, and in-house sources. The JLS retrieves information from the most comprehensive, extensive, and uninterrupted longitudinal database of medical students and graduates maintained in a single medical school.

### Goals

**Service to**
- Faculty (e.g., responding to inquiries)
- Academic committees (e.g., providing data to analyze admissions trends, to evaluate programs, or to examine success/failure factors in students' performance)
- College/dean's office/administrators (e.g., providing data for the annual report, dean's letters of evaluations, or accreditation)
- Students (e.g., guiding academic and career development)

**Research**
- Data analyses in collaboration with faculty to support their scholarship and address issues in medical education for publication and presentation at professional meetings

### By the Numbers

As of December 2010, the JLS
- Contained approximately 6 million pieces of data
- Tracked 10,600 students
- Garnered data from 573 postgraduate training hospitals
- Inspired 179 peer-reviewed publications* (56 in *Academic Medicine*)

* Abstracts of 155 publications of the JLS are posted at http://jdc.jefferson.edu/jlsme.

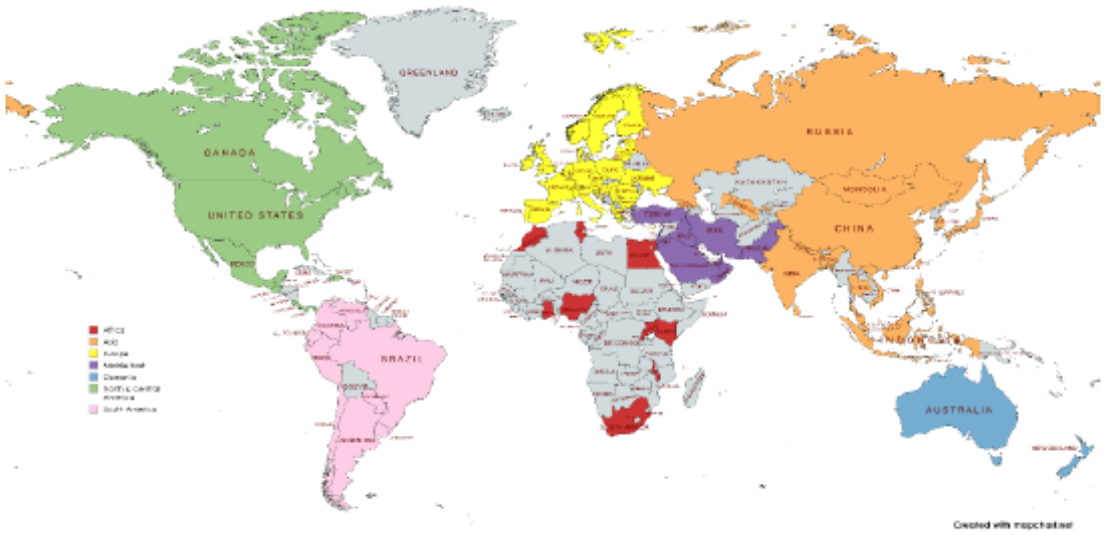
### New Instruments

The JLS has led to the development of the following instruments for measuring educational outcomes:
- Jefferson Scale of Empathy[3]
- Jefferson Scale of Attitudes Toward Physician–Nurse Collaboration[4]
- Jefferson Scale of Physician Lifelong Learning[5]
- Scale of Attitudes Toward Physician–Pharmacist Collaboration[6]

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**Gonnella JS, Hojat, M, Veloski, J. AM Last Page: The Jefferson Longitudinal Study of Medical Education. *Acad. Med.* 86(3):404, March 2011. Reprinted with permission by *Academic Medicine*.**

## Figure 2: Worldwide Use of the Jefferson Scale of Empathy

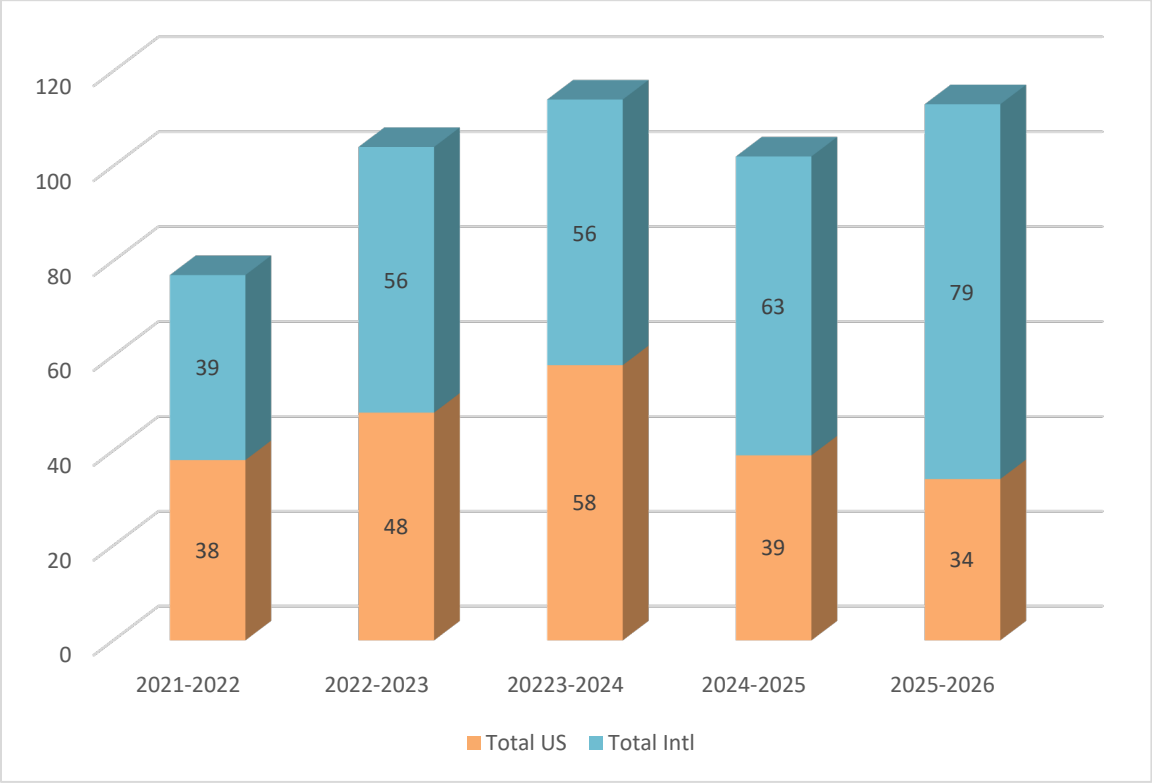



| | | | | |
|---|---|---|---|---|
| ***Africa:*** | Philippines | France | Ukraine | Canada |
| Egypt | Russia | Germany | United Kingdom | Costa Rica |
| Ghana | Singapore | Greece | ***Middle East:*** | Guatemala |
| Kenya | South Korea | Hungary | Iran | Dominican Republic |
| Malawi | Sri Lanka | Ireland | Iraq | Haiti |
| Morocco | Taiwan | Italy | Israel | Mexico |
| Nigeria | Thailand | | | Panama |
| Rwanda | Uzbekistan | Latvia | Jordan | St. Maarten |
| South Africa | Vietnam | Lithuania | Kuwait | Trinidad & Tobago |
| Tunisia | ***Europe:*** | Norway | Oman | United States |
| Uganda | Albania | Poland | Lebanon | ***South America:*** |
| ***Asia:*** | Austria | Portugal | Pakistan | Argentina |
| Bangladesh | Belgium | Romania | Qatar | Brazil |
| China | Bulgaria | Scotland | Saudi Arabia | Chile |
| Georgia | Croatia | Serbia | Turkey | Columbia |
| Hong Kong | Czech Republic | Slovakia | United Arab Emirates | Ecuador |
| India | Cyprus | Slovenia | ***Oceania:*** | Paraguay |
| Indonesia | Denmark | Spain | Australia | Peru |
| Japan | England | Sweden | New Zealand | Uruguay |
| Malaysia | Estonia | Switzerland | ***Americas:*** | Venezuela |
| Mongolia | Finland | The Netherlands | ***North/Central*** | |
| Nepal | | | | |

| ***Translations of the Jefferson Scale of Empathy*** | | | | |
|---|---|---|---|---|
| ***Albanian*** | Belgium | ***Hindi*** | ***Portuguese*** | Mexican |
| ***Arabic*** | The Netherlands | ***Hungarian*** | Portugal | Panama |
| Moroccan (Darija) | ***Estonian*** | ***Indonesian*** | Brazil | Peruvian |
| ***Bengali*** | ***Filipino*** | ***Italian*** | ***Romanian*** | Spain |
| ***Bulgarian*** | ***Finnish*** | ***Japanese*** | ***Russian*** | ***Swedish*** |
| ***Chinese*** | ***French*** | ***Korean*** | ***Serbian*** | ***Tagalog*** (Philippines) |
| Simplified | Belgium | ***Latvian*** | ***Sinhalese*** | ***Tamil (India)*** |
| Mainland | France | ***Lithuanian*** | ***Slovak*** | ***Tamil*** (Sri Lanka) |
| Taiwan | Canada | ***Malaysian*** | ***Slovenian*** | ***Thai*** |
| ***Croatian*** | Switzerland | ***Mongolian*** | ***Spanish*** | ***Turkish*** |
| ***Czech*** | ***German*** | ***Nepali*** | Argentina | ***Ukrainian*** |
| ***Danish*** | ***Greek*** | ***Norwegian*** | Catalan | ***Urdu*** |
| ***Dutch*** | ***Haitian (Creole)*** | ***Persian (Farsi)*** | Chile | ***Uzbek*** |
| Flemish | ***Hebrew*** | ***Polish*** | Dominican Republic | ***Vietnamese*** |
| | | | El Salvador | |

## Figure 3

Number of Domestic vs International Researchers Given Permission to use the JSE by Year



# Center Faculty and Staff

## Faculty

### Charles A. Pohl, MD, Former Executive Director

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Dr. Charles Pohl is the Senior Vice Provost for Student Affairs at Thomas Jefferson University. In this role, he is responsible for developing and executing a multi campus strategy and overseeing the breath of campus life for the 8,400 students with a particular focus on the multi-dimensional student experience, community and external engagement, alumni relations and philanthropy. Dr. Pohl, a professor of pediatrics, is also the Vice Dean for student affairs at Sidney Kimmel Medical College (formerly known as Jefferson Medical College) and the Executive Director of the Asano-Gonnella Center for Research in Medical Education and Health Care. He is a mission-based leader that brings a perspective to education from his interest and experience in the healthcare learning environment, collaborative compassionate care, and general pediatrics, which has resulted in numerous national presentations, peer-reviewed publications, and a book on medical professionalism. He has served as the Chair for the Group of Student Affairs (GSA) for the Association of American Medical Colleges (AAMC), the Chair of the AAMC GSA Medical Student Performance Evaluation Effective Practices Working Group, and the National Gold Humanism Honor Society (GHHS) Advisory Council. His impact on medical education, pediatrics and medicine has been lauded by his induction to the Alpha Omega Alpha Medical Honor Society, the College of Physicians of Philadelphia and the Gold Humanism Honor Society.

### Dimitrios Papanagnou, MD, EdD, MPH, Director

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Dr. Dimitrios Papanagnou is a Professor of Emergency Medicine and Vice Chair for Education in the Department of Emergency Medicine at Sidney Kimmel Medical College (SKMC) at Thomas Jefferson University. He serves as Senior Associate Dean for Faculty Development at the college and Associate Provost for Faculty Development at Thomas Jefferson University, where he leads initiatives to advance faculty growth, educational innovation, and scholarship. He directs the college's Health Systems Science curriculum and co-directs its Scholarly Inquiry Track in Medical Education. An accomplished medical educator and scholar, Dr. Papanagnou's work focuses on clinical and diagnostic uncertainty, health systems science, and the development of innovative approaches to teaching and assessment. As a 2020 Josiah Macy Jr. Foundation Faculty Scholar, he developed a longitudinal curriculum addressing uncertainty in clinical practice. In 2022, he was named a Scholar of Diagnostic Excellence by the National Academy of Medicine, and in 2023, he received the AAMC Alpha Omega Alpha Robert J. Glaser Distinguished Teacher Award. His scholarly contributions include more than 140 peer-reviewed publications, over 250 abstracts and presentations, and more than $2.5 million in grant funding supporting medical education research and innovation. A dedicated mentor to faculty and students, he is committed to advancing educational scholarship and cultivating the next generation of medical educators. His contributions to academic medicine have been recognized through his induction into the Alpha Omega Alpha Honor Medical Society and Fellowship in the College of Physicians of Philadelphia.

**Aaron Douglas, PhD, Director of Medical Education Research and Associate Director of the Jefferson Longitudinal Study**

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Dr. Douglas completed his graduate-school training at Pennsylvania State University in 2004. His specialization is in educational and psychological measurement, research design, survey methodology, and applied statistics. His responsibilities include performing psychometric and statistical analysis related to medical education research and managing the Jefferson Longitudinal Study. Dr. Douglas also provides research methodology support for other departments and several faculty in the medical college. His work supporting the medical college has resulted in several medical education research publications. His future additional research activities will feature the use of his data scientist skills for a large-scale survey research project that will utilize the Jefferson Scale of Empathy and other questionnaires that measure non-cognitive competencies critical for effective practice of medicine. He also manages the Longitudinal Study database with a focus on tools that automate and innovate the annual reporting of this important data.

**Rosemary Frasso, PhD, CPH**

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Dr. Rosemary (Rosie) Frasso is a health equity researcher and public health educator and the wVictor Heiser, MD, Professor of Population Health. Her current research focuses on the integration of qualitative and quantitative methods in projects designed to improve population health, healthcare quality, access to health services for vulnerable populations and evaluation of educational endeavors in medicine, social work, nursing, allied health, and public health settings. Recognized as an expert in mixed methods study design, Dr. Frasso provides consultation and oversight on qualitative projects for clinicians, researchers, and students as well as for partners from local, national and international organizations, including the Wills Eye Hospital, the Philadelphia Department of Public Health, the Federal Reserve Banks of Chicago and Philadelphia, LV Prasad Eye Institute and KLE University in India, and Università Cattolica del Sacro Cuore, Italy. Her expertise in qualitative methods focuses on traditional and alternative data sources and data collection approaches that are crucial to studies designed to inform, assess, and promote health equity interventions. Dr. Frasso has trained hundreds of researchers to conduct rigorous qualitative and mixed methods research studies through a popular mini-course on qualitative research that draws learners from around the US. Dr. Frasso embraces traditional and created data collection approaches, including, but not limited to, arts informed research, tag-a-long interviews, photo-elicitation interviews, photo-voice, free listing and consensus-deriving group approaches. Additionally, she has worked on several cross-disciplinary projects with educators, artists and economists who are committed to using qualitative methods to support and enhance community collaborations and to amplify the voices of patients and vulnerable populations. She is an Associate Editor of the European Journal of Public Health and reviews manuscripts for several leading peer-reviewed journals. She also serves on the Executive Board of the Association for Prevention Teaching and Research and is an active member of the Public Health Section of the Philadelphia College of Physicians.

**Joseph S. Gonnella, MD, Dean Emeritus**

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Dr. Gonnella is Distinguished Professor of Medicine, Dean Emeritus of Jefferson

Medical College, and founder of the Center. Dr. Gonnella received his BA from Dartmouth College (summa cum laude) and his MD from Harvard Medical School. He has been awarded the Commendatore dell'ordine della Stella della Solidarietà Italiana in 1978; the Grande Ufficiale in 1995 by the President of Italy; the Dongbaeg Medal by the President of Korea; the Presidential Medal by Dartmouth College; and the Presidential Citation by Thomas Jefferson University; 2015 Consular Award from the Italian Consul General of Philadelphia. He has received honorary degrees from the University of Chieti, Italy, SoonChunHyang University in Seoul, Korea, Widener University, the University of Minho in Portugal, and the International Medical University of Malaysia. He has also received an honorary professorship from Tianjin Medical College in Tianjin, China, and a Distinguished Fellowship from the International Medical University, Malaysia. In 1998 he received the Abraham Flexner Award from the Association of American Medical Colleges (AAMC). Dr. Gonnella's research has focused on the relationship between knowledge, capabilities, and clinical performance. He has developed the Disease Staging classification system that is used in the U.S. and internationally to assess the quality and costs of health care.

**Mohammadreza Hojat, PhD, Director of the Jefferson Longitudinal Study**

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Dr. Mohammadreza Hojat is Research Professor in the Department of Psychiatry and Human Behavior and the Director of the Jefferson Longitudinal Study at the Center. He received his PhD from the University of Pennsylvania. In addition to the development of the longitudinal database of medical students and graduates, he has pioneered new instruments measuring psychosocial factors and student personal qualities in relation to academic and clinical performance. Dr. Hojat has led the development of the following scales that measure aspects of professionalism in medicine: Jefferson Scale of Empathy, Jefferson Scale of Physician Lifelong Learning, Jefferson Scale of Attitudes toward Physician–Nurse Collaboration, and Scale of Attitudes toward Interprofessional Collaboration, and Attitudes Toward Osteopathic Medicine Scale. Jefferson Scales for the Assessment of Educational & Patient Outcomes He has more than 40 years of experience in educational and psychological research and has published over 250 articles in peer reviewed journals and 13 book chapters. He is a manuscript referee for several American and European professional journals and has served as a guest co-editor for thematic issues of the *Journal of Social Behavior and Personality* (on loneliness), *Academic Medicine* (on assessments in medical school and beyond), and *Evaluation, the Health Professions* (on changes in the health care system). Dr. Hojat collaborated with Dr. Stewart Mercer, creator of the Consultation and Relational Empathy (CARE) wrote a book chapter on Measure of Empathy in Healthcare that will be published in a few months.

Dr. Hojat is a licensed psychologist and a coauthor of three books: *Loneliness: Theory, Research, and Applications* (Springer, 1987), and *Assessment Measures in Medical School, Residency, and Practice: The Connections* (Springer, 1993), and Fifty Years of Findings from the Jefferson Longitudinal Study of Medical Education, Springer, 2022). Dr. Hojat's book, *Empathy in Patient Care: Antecedents, Development and Outcomes* was published by Springer in 2007, and its 2nd updated and expanded edition under a new title, "Empathy in Health Professions Education and Patient Care" was released in 2016.

The 3rd edition of the book "*Clinical Empathy: The Heart of Patient Care*" was released by Springer in 2026.

**Vittorio Maio, PharmD, MS, MSPH, PharmD, MS, MSPH, Managing Director, Director, Health Services Research**
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Vittorio Maio is the Managing Director of the Center and Director of Health Services Research of the Center and Professor in the Jefferson College of Population Health. He is Director of the Master of Science in Applied Health Economics & Outcomes Research and Director of the post-doctoral Health Economics & Outcomes Research Fellowship Programs. Dr. Maio is also Director of the Italy Center, and the Jefferson Global Engagement Program. Dr. Maio's research interests are in the areas of outcomes analysis, comparative effectiveness research, economic evaluation, and medication usage and policy. He has published more than 70 papers in peer-reviewed journals and presented his research at many national and international conferences. His research has received extensive funding from national and international institutions, focusing mainly on the appropriateness of medication prescribing and the quality of care in both inpatient and outpatient settings. He is Associate Editor of the *American Journal of Medical Quality* and the *Italian Journal of Medicine,* and serves as a reviewer for several professional journals, including *JAMA-Internal Medicine*, *The Lancet*, *Pharmacoepidemiology and Drug Safety*, and *Drugs & Aging*. Dr. Maio received his Doctor of Pharmacy degree from the University of Perugia (Italy), took the Italian Pharmacist Board Certification, and received both his Master of Science in Pharmacology and his Master of Science in Public Health from Thomas Jefferson University. He lectures on health policy issues in the College of Pharmacy, Thomas Jefferson University, and on health services and outcomes research in the Master's programs of the Jefferson College of Population Health and in the Master's Program in Management of Health Care Organizations at the University of Pisa, Italy, Faculty of Economics. He lectures on Applied Epidemiology in Healthcare at University of Parma, Italy, Faculty of Medicine, College of Specialization in Hygiene. He serves as grant reviewer for the Italian Ministry of Health.

## Research Staff

**Jennifer DeSantis, M.Ed., Senior Research Study Analyst**
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Jen DeSantis is a Senior Research Study Analyst. She has over fifteen years of experience in psychology and education research and management, with an M.Ed from Stanford University and a B.A from Vassar College. At the Center, she performs statistical analyses for collaborative projects with faculty and students and has co-authored numerous publications since joining the center in 2016. She also manages technical, scoring, and analytic services for a growing number of domestic and international clients using the Jefferson Scale of Empathy in their research.

## Technical Staff

**Lifan He, MS, Programmer/Analyst II**
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As a Senior Technical Analyst, Lifan He manages the database of the Longitudinal Study, which houses over 20 million pieces of data on every Sidney Kimmel Medical College student since 1964. He provides technical support for other assessment databases such as the Student Clerkship Evaluation, NBME Subject Examinations, Objective Structured Clinical Examinations (OSCEs) and the Jefferson Scale of Empathy. Lifan maintains the interface to external data sources such a Banner, New Innovations, NBME, USMLE, AMA and

ABMS. He prepares special reports and builds web applications from these sources for clerkship directors, Deans, the Provost, and other leadership. Lifan earned his BS in Neurosciences and MS in Health Informatics at Temple University.

**Edward C. Nicks, Jr., Statistical Assistant**
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Mr. Nicks has been with the Center since 1986. He is a Statistical Assistant whose primary responsibility is coordinating examination and evaluation services for the Medical College and the College of Health Professions. He assists in the maintenance of the longitudinal database of medical students and graduates, coordinating mailings, collecting data, and providing statistical analysis and reports. He also assists in the management of computers and other hardware within the Center.

## Administrative Staff

**Shira A. Carroll, BA, Administrative Assistant**
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Since 2015, Shira Carroll has been the Administrative Assistant to the Center and to Vittorio Maio, Managing Director, and serves as the Project Coordinator for the Jefferson Empathy Project. Her responsibilities include processing permission requests and orders from researchers worldwide for the use of the Jefferson Scale of Empathy and the 11 Jefferson assessment scales. She maintains a database of users and translations. She also provides administrative support to Center staff for a variety of other projects and publications.

# Jefferson Research Collaborators

The Center collaborates with multiple other Thomas Jefferson University faculty and staff. The following individuals served a major role on externally funded Center projects in the current academic year.

**Scott W. Keith, PhD, MS**
**Professor of Biostatistics, Division of Biostatistics and Bioinformatics**
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Scott W. Keith is Professor of Biostatistics in the Division of Biostatistics and Bioinformatics. He received his BA from The University of Vermont, his MS in Mathematics from The University of New Orleans, and his PhD in Biostatistics from The University of Alabama at Birmingham. He is Associate Editor of *Frontiers in Nutrition Methodology*. Dr. Keith's research interests include obesity-related outcomes, cancer outcomes, risk of hospitalization, medication usage and policy, modeling event rate data, and developing nonlinear and multilevel statistical methods. Dr. Keith is collaborating with Center faculty and staff on several healthcare services research projects.

**Mary R. Robeson, MS, Project Coordinator, Medical Education Division**
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Mary R. Robeson retired in March of 2018. She had been a collaborator on projects studying the quality and cost of care in the Italian health care system, and in the development of a risk of hospitalization model, and patient profiles based on that model for adult residents of the Emilia-Romagna Region of Italy. In addition, she had been involved in the development of a risk of hospitalization predictive model to identify high-risk patients in the pediatric population in the Emilia-Romagna Region. She was also involved in student assessment and evaluation of the medical education programs. Ms. Robeson also had a major role in the data analysis and scoring of the

OSCEs at the Clinical Skills Center. She also acted as a consultant for the evaluation services for the Medical College and the College of Health Professions. Her background is in psychology and sociology, statistics, testing, and measurement. Ms. Robeson holds a master's degree in educational measurement from the University of Pennsylvania.

## Visiting Scholars

The Center periodically hosts researchers from other institutions. The Center's visiting scholars include:

**Alawi Alsheikh-Ali, MD**
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Dean, College of Medicine
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**Yoshihisa Asano, PhD, DPH**
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**Charles A. Pohl, MD**
Former Director, Asano-Gonnella Center for Research in Medical Education & Healthcare
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# Teaching and Other Professional Activities

## Publications

Acampora A, Melnyk A, Gatta EL, Nardi A, Angelici L, **Frasso R,** Agabiti N. Identifying barriers and facilitators to audit & feedback in general practice in Italy: A qualitative study. *BMC Health Services Research*. 2026;(26):347. https://doi.org/10.1186/s12913-026-14141-w

Bierowski A, Morrone C, Ghei R, **Papanagnou D**. Twelve Tips to Help Junior Faculty Review Medical Education Literature with Confidence. *MedEdPublish.* 2025;**15**:40. https://doi.org/10.12688/mep.21090.1

Bierowski A, Tayyem Z, Morrone C, Hoag E, Kehm K, Rodriguez C, Laoteppitaks C, Tomaselli PJ, **Papanagnou D**, Zhang XC. Examining Gender Differences and the Impact of Additional Fourth Year Rotations on Emergency Medicine Standardized Letter of Evaluation (SLOE) Scores. *Cureus.* 2025; Oct 13;17(10):e94488. doi: 10.7759/cureus.94488. PMID: 41235021; PMCID: PMC12610916

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National Inpatient Sample Data. *World Journal of Urology.* 2026;44(1):235. doi: 10.1007/s00345-026-06329-w

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## Presentations

Abdah S, Benedict E, Qi L, Diamond N, Coleman C, Miller R, **Frasso R.** "I would Just Try to Make it back Home": A qualitive Study of Teen's Perceptions of Policing. APHA 2025, Washington, DC

Chen B, **Frasso R,** Miller S. Shield Up: Gun Lock Distribution. APTR April 2026

Di Pumpo M, Gualano MR, Buonsenso D, Raffaelli F, Donà D, **Maio V**, Laurenti P, Ricciardi W, Villani L. Large language models to reduce antimicrobial resistance:

ChatGPT, Claude and Gemini comparison. Accepted at the 18th European Public Health Conference 2025 in Helsinki, Finland. November 11-14, 2025

DiSantis K., George B, **Frasso R**. Round Table Discussion, Supporting Students in Publishing MPH Capstone Projects: A Five-Year Review Teaching & Learning. APTR April 2026

Feick M, Shefner R, **Frasso R**. Health Misinformation: The Impact on Health Professional Learners. APTR April 2026

Fennessey A, Hunter L, Remshiski P, Okatch, H., Campbell, H, Barnoy S.,Friedman J., Kern S, **Frasso R,** Sorensen C, Zaltz Y. and Bar-Shalita T. (2025). Climate Change and Its Impact on Health: A Global Collaborative Learning Model. Poster Presentation at the Consortium of Universities for Global Health: Atlanta, Georgia, Feb 2025

**Frasso R**, Qualitative Research, Universita Cattolica del Sacro Cuore, Rome, Italy, September 2025

Heilizer JS, Matsubara J, Manning A, Harris R, Kozlowski B, Wilson S, Eddy G, Nega A, Zhang A, Arunkumar N, **Frasso R.** JeffHOPE: A Qualitative Investigation into Barriers to Care in People Experiencing Homelessness in Philadelphia. Poster presentation at Society of Student-Run Free Clinics Annual Conference, Chicago, IL, October 2025.

Jones F, **Frasso R**., Baronet W, den Bok L, Keys M. "It could have been me": Museum Visitors Share Their Thoughts on an Art Exhibit Exploring Housing Insecurity. APHA 2025, Washington, DC

LaRosa S, Wiener L,_Thind S, Flax V, Charantimath U, Dandappanaver A, Derman R, **Frasso R**. IV Iron Treament for Post-Partum Anemia: A Qualitative Study Exploring Implementation Challenges. APHA 2025, Washington, DC

**Maio V**. Developing a Risk Stratification Instrument for Primary Care. Università Cattolica del Sacro Cuore, Rome, Italy. June 9, 2026

**Maio V**. Interpreting Observational Evidence in Clinical Medicine. Università degli Studi Di Milano Bicocca, Italy. April 21, 2026

**Maio V**. Risk stratification in Primary Care. Training program for General Directors of Local Healthcare Authorities and Hospitals, Università di Bologna & Emilia-Romagna Region, Italy. March 27, 2026

**Papanagnou D.** Smart Isn't Enough: Why Great Leaders Lead with Emotional Intelligence. (EQ) Emergency Medicine Residents' Association [EMRA] Leadership Academy, August 2025

**Papanagnou D.** Building the Boardroom: Designing the Network that Elevates You. Faculty Development Opportunities for Mentorship. Jefferson, Department of Medicine, October 2025

**Papanagnou D.** Faculty Development for Clinical Skills Teaching. International Symposium on Clinical Clerkships for Future Medical Providers. Institute of Science Tokyo, Tokyo Medical and Dental University, Tokyo, Japan, November 2025

**Papanagnou D**, Vaid U, Lundgren H, Marsick VJ, Watkins KE. Engaging Learners in Uncertainty: From Observation to Assessment in Undergraduate Medical Education. Presented at the 2026 Association for American Medical College (AAMC) Northeast Group on Education Affairs (NEGEA) Conference, Scranton, PA; March 2026.

**Papanagnou D**. Navigating Uncertainty in Clinical Practice, City University of New York School of Medicine, May 2026

Perrin Hee BT, Beekman A, Farrel A, Gunning T, **Frasso R.** Misreading the readings: a qualitative study of patient perception and understanding of radiology reports. Presented at: Radiological Society of North America; December 4, 2025; Chicago, IL

Phan VH, Kimani ME, Sottung E, Kim I, Lallas C, **Maio V**. Perioperative Cost-Effectiveness of Partial Nephrectomy Techniques for Renal Cell Carcinoma in the United States. 2026 International Society Pharmacoeconomics and Outcomes Research Annual International Meeting, Philadelphia, USA, May 18, 2026

Phan VH, Sottung L, Khanal S, Pogorzelska-Maziarz M, Schmist T, Mukhjia J, **Frasso R**, **Maio V**, de Cordova P. Infection Prevention Challenges and Lessons Learned from COVID-19: Implications for Acute Care Preparedness. AMCP Annual Meeting, Nashville, April 15, 2026

Rubinos C, Fernandez A, Daily J, Grant J, **Frasso R,** Bruzzone MJ. Building Bridges: A Structured Framework for Translating the ACNS Standardized ICU EEG Nomenclature into Spanish, American clinical Neurophysiology Society Meeting, New Orleans, LA Feb 2026

Seltzer M, Ogunfadebo T, Senatore M, Voeller M, Sicks S, Salzman B, Thind S, DiSantis K., Van Orsdol Z, Edmonds M, Bowen K, **Frasso R.** Learning from Experts by Experience: The Community Voices Series APHA November 2025, Washington, DC

Sottung L, Phan VH, Khanal S, Pogorzelska-Maziarz M, Schmist T, Mukhjia J, **Frasso R**, **Maio V**, de Cordova P. Staffing Perceptions and the Impact of COVID-19 on Infection Prevention and Control Programs: A Qualitative Study. AMCP Annual Meeting, Nashville, April 15, 2026

### New Media

2026 Voices: Listeners in the Noise – Autism as an Agent for Urban Sound Experiences

This project was a research collaboration with filmmakers Loukia Tsafoulia and Severino Alfonso. My role included training the interviewers, appearing in the film, and leading the embedded research component that accompanied the production. https://jefferson.app.box.com/s/582nmb7gb9y2rdzxhpubcto0949iq46b

### Teaching

**Rosemary Frasso, PhD, CPH**
*Director, Mixed Methods Research*

Master of Public Health:
Qualitative Research, Capstone Course

Sidney Kimmel Medical College: Social Drivers of Health
Population Health and Public Health Research Methods for SI Students

Co-taught Pandemics Course

**Vittorio Maio, PharmD, MS, MSPH**
*Management delle Aziende Sanitarie* Master's Program in Health Care Management, University of Pisa, Italy.

*Applied Epidemiology in Healthcare* School of Specialization in Hygiene, Faculty of Medicine, University of Parma, Italy.

## Awards

*Lindback Award for Distinguished Teaching*
Rosie Frasso, PhD, College of Population Health

*Provost Award for Institutional Service*
Vittorio Maio, PharmD, MSPH, College of Population Health

*The 2026 Alpha Omega Alpha (AOA) Honor Medical Society Professionalism Award*
Dimitrios Papanagnou, MD, EdD, MPH, PhD, Department of Emergency Medicine

## Other Professional Activities

**Rosemary Frasso, PhD, CPH**

*Memberships*
- Delta Omega – Public Health National Honorary Society
- Fellow, College of Physicians, Philadelphia, Pennsylvania
- Society of Prevention Teaching and Research
- Association of Schools and Programs in Public Health
- Society for Public Health Education
- American Public Health Association

*Reviewer*
- *Discover Social Science and Health*
- *BMC Public Health*
- *European Journal of Public Health*
- *American Public Health Association*
- *Population Health Management*
- *Frontiers in Public Health*
- *ASSPH* Poster Reviewer/Judge

*Associate Editor*
-*European Journal of Public Health*

**Joseph S. Gonnella, MD**
- Alpha Omega Alpha Honor Medical Society (Honorary)
- American Association for the Advancement of Science
- Nacional Academy of Medicine, Mexico
- Royal College of Physicians, Edinburgh, Scotland

*Extramural Activities*
- Noguchi Medical Research Institute Emeritus Trustee
- Tianjin Medical University, People's Republic of China – Chairman of Advisory Committee of Foreign Experts
- University of Minho, Portugal, External Advisory Committee

**Mohammadreza Hojat, PhD**

*Memberships*
- American Psychological Association

*Reviewer*
- *Academic Medicine*
- *Journal of Family Issues*
- *Medical Education*
- *Medical Teacher*
- *Nursing Research*

*Editorial Board*
- *Journal of Patient Experience*
- *International Journal of Medical Education*

**Vittorio Maio, PharmD, MS, MSPH**

*Memberships*
- Delta Omega – Public Health National Honorary Society
- Associate Editor*, American Journal of Medical Quality*
Associate Editor*, Italian Journal of Medicine*
- Grant Reviewer, *Italian Ministry of Health*

*Reviewer*
- *Advances in Health Sciences Education*
- *Age and Aging*
- *American Journal of Obstetrics and Gynecology Maternal Fetal Medicine*
- *Amer. J. of Pharmaceutical Education*
- *British Medical Journal*
- *BMJ Leader*
- *BMJ Quality and Safety*
- *Clinical Drug Investigation*
- *Clinical Interventions in Aging*
- *Diabetes Research and Clinical Practice*
- *Drugs & Aging*
- *European Journal of Internal Medicine*
- *European Journal of Hospital Pharmacy*

- *European Journal of Public Health*
- *International Journal of Clinical Practice*
- *JAMA – Internal Medicine*
- *Journal of Clinical Pharmacy and Therapeutics*
- *Journal of Geriatric Psychiatry and Neurology*
- *Journal of Interprofessional Care*
- *Journal of Pain and Symptom Management*
- *Medical Science Monitor*
- *Pharmacoepidemiology and Drug Safety*
- *Pharmacological Research*
- *PLoS ONE*
- *Population Health Management*
- *Psychiatric Services*
- *Quality in Primary Care*
- *Scientific Reports*
- *The Joint Commission Journal on Quality and Patient Safety*

**Dimitrios Papanagnou, MD, EdD, MPH, PhD**

*Awards*

- The 2026 Alpha Omega Alpha (AOA) Honor Medical Society Professionalism Award
- 3rd place Poster Award, Council of Emergency Medicine Directors (CORD) Academic Assembly

*Memberships*

- *College of Physicians of Philadelphia (FCPP)*
- *AΩA Xi Chapter of the City University School of Medicine*
- *Gay and Lesbian Medical Association (GLMA)*
- *American College of Emergency Physicians (ACEP)*
- *American MENSA*
- *Society for Simulation in Healthcare (SSH), member*
- *Josiah Macy, Jr. Foundation*
- *National Academy of Medicine, Diagnostic Excellence Scholar*

*Reviewer*

- *Journal for the Society for Academic Emergency Medicine (SAEM)*
- *Journal of the Society for Simulation in Healthcare (SSH)*
- *Association of American Medical College (AAMC)*
- *Journal of the American College of Emergency Physicians (ACEP)*
- *Jefferson College for Interprofessional Education (JCIPE) Conferences*
- *Council of Residency Directors (CORD) for Emergency Medicine*
- *British Medical Journal (BMJ): BMJ Quality and Safety Journal*
- *The Cureus Journal of Medical Science*
- *American Journal of Medical Quality*
- *Academic Emergency Medicine (AEM) Education and Training*

*Editorial Board*

- *Academic Emergency Medicine: Education and Training*
- *American Journal of Medical Quality-Society for Directors for Research in Medical Education (SDRME)*
- American Medical Association (AMA)

# Exhibits


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**Exhibit 1**
**Undergraduate Science GPA**

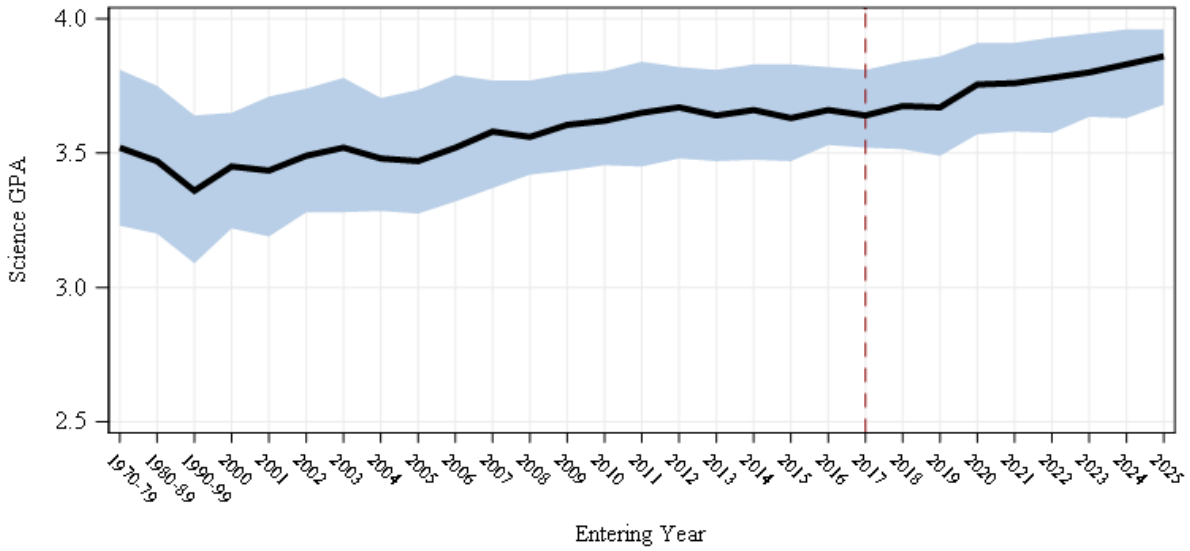
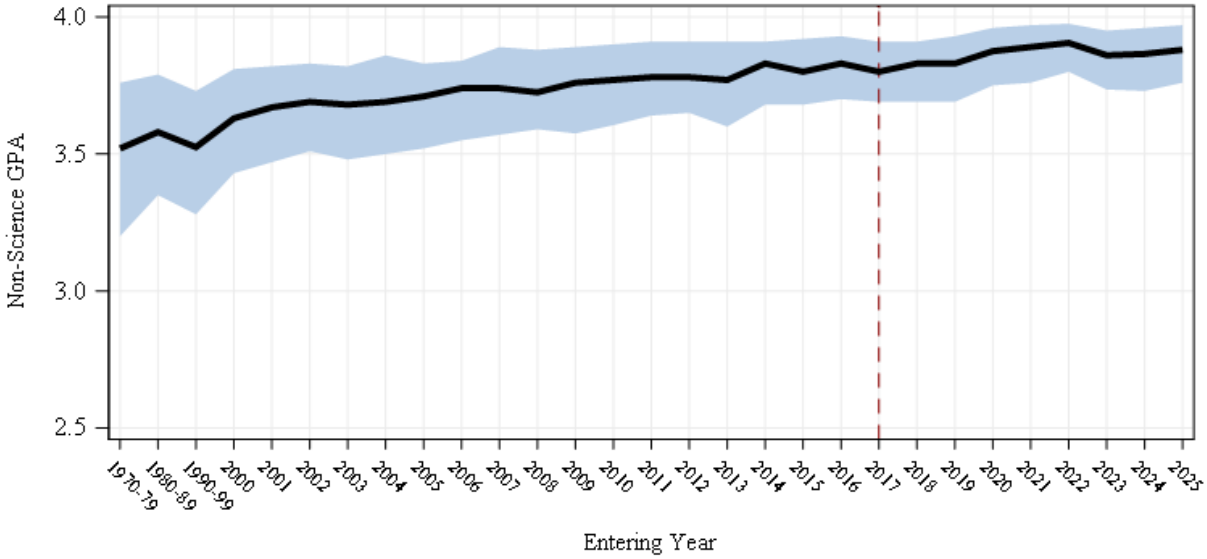



**Exhibit 2**
**Undergraduate Non-Science GPA**




The new JeffMD curriculum was implemented in 2017, shown by vertical dash-line.

**Exhibit 3**
**Average MCAT Scores of Matriculants (Biological and Biochemical Foundations of Living Systems)**

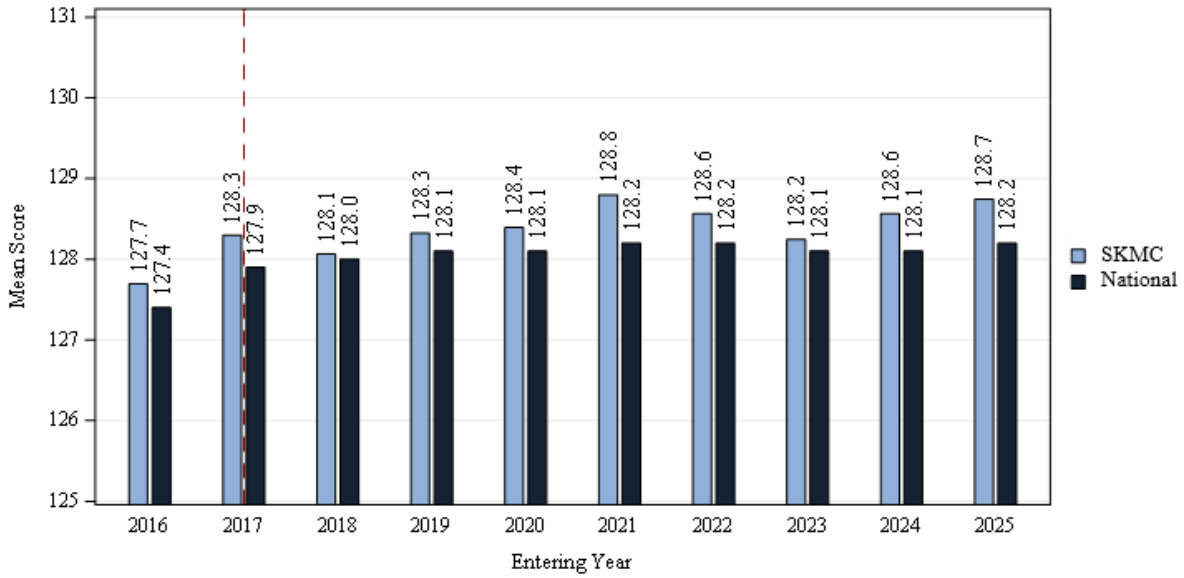
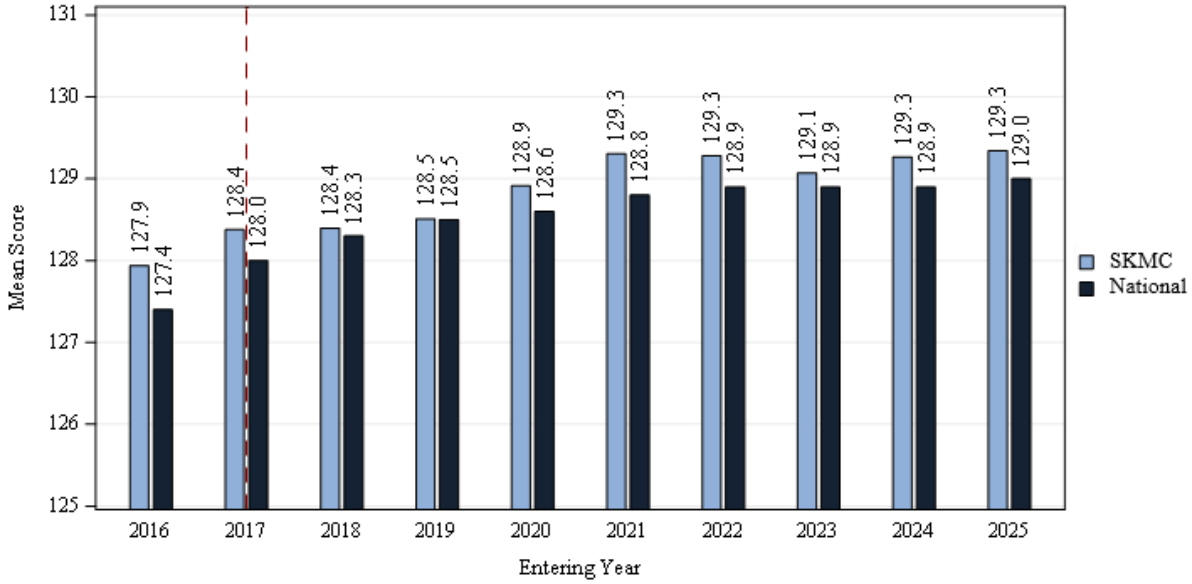



**Exhibit 4**
**Average MCAT Scores of Matriculants (Psychological, Social, and Biological Foundations of Behavior)**




The new JeffMD curriculum was implemented in 2017, shown by vertical dash-line.

**Exhibit 5**
**Average MCAT Scores of Matriculants (Chemical and Physical Foundations of Biological Systems)**

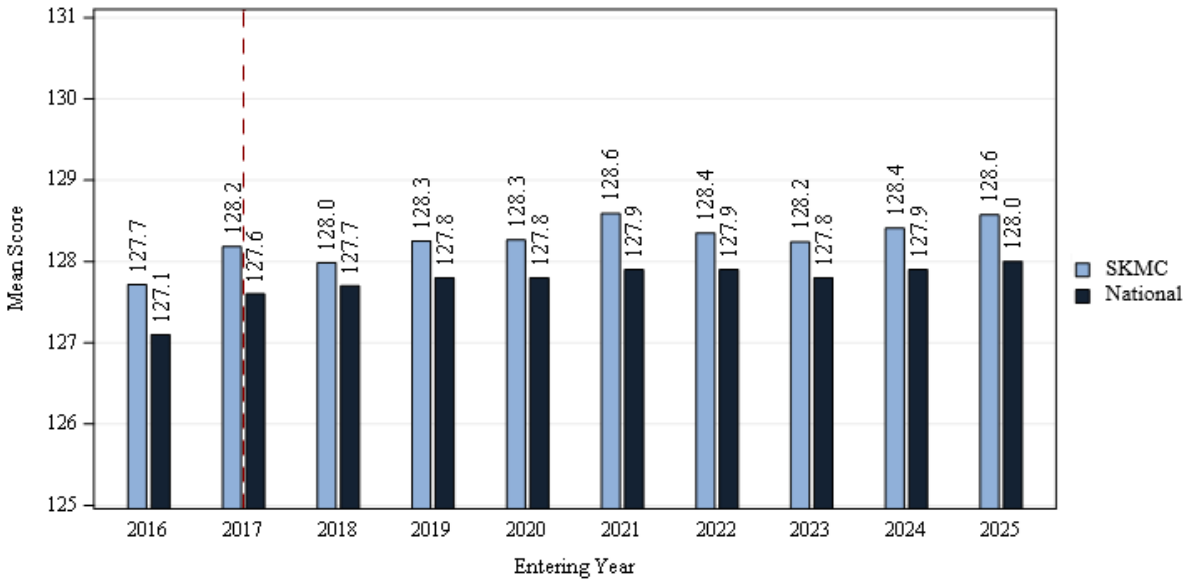
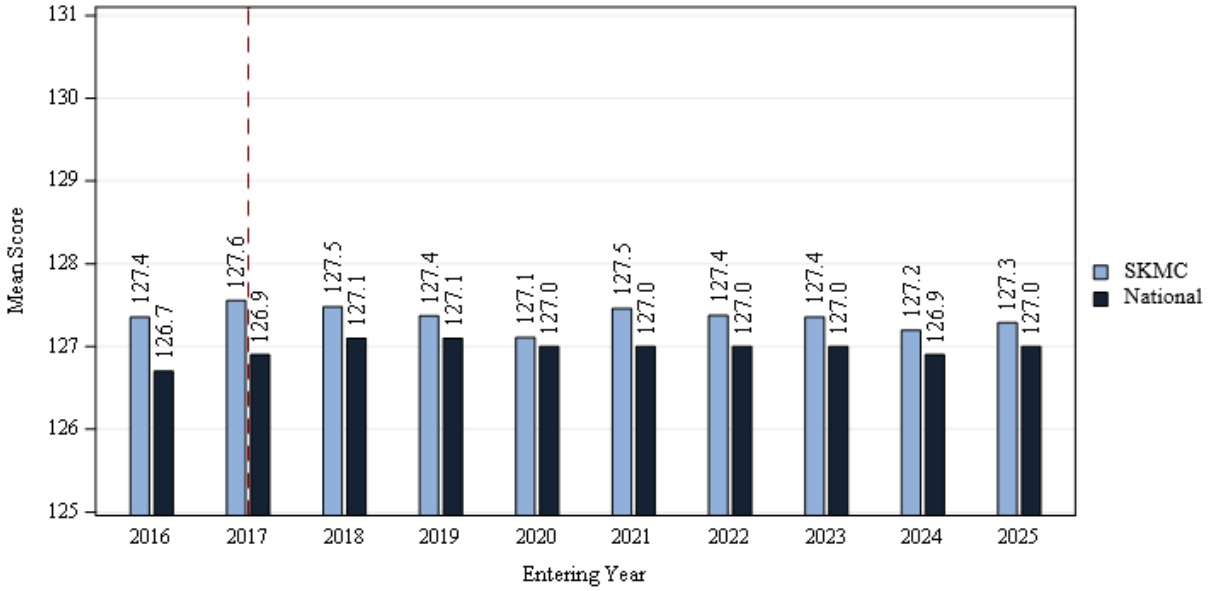
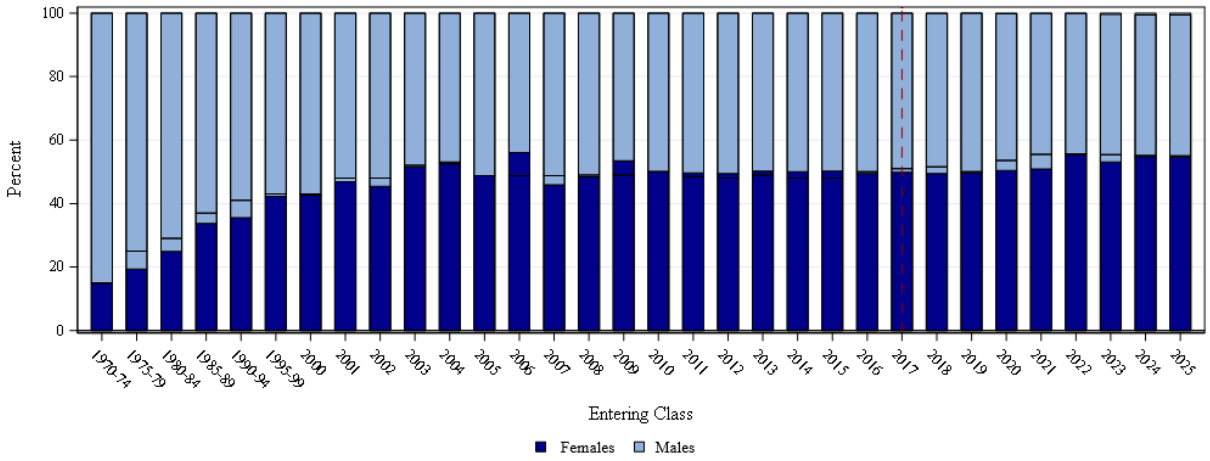



**Exhibit 6**
**Average MCAT Scores of Matriculants (Critical Analysis and Reasoning Skills)**



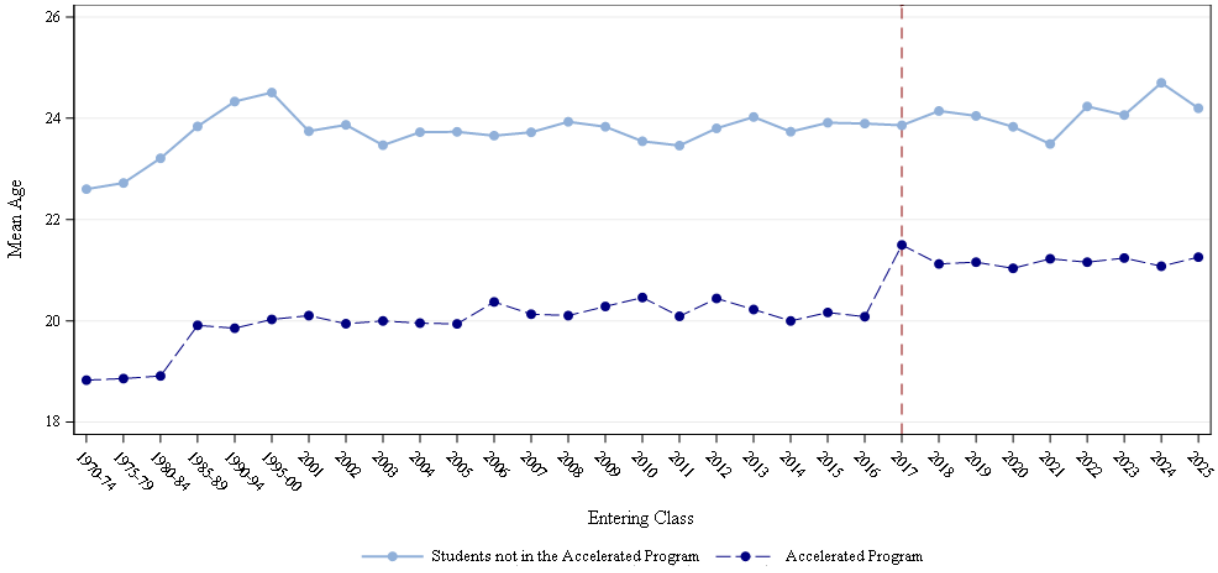

The new JeffMD curriculum was implemented in 2017, shown by vertical dash-line.

**Exhibit 7**
**Percent of Matriculants by Gender**




— Percent of women matriculants at all US medical schools.

**Exhibit 8**
**Mean Age at Matriculation**



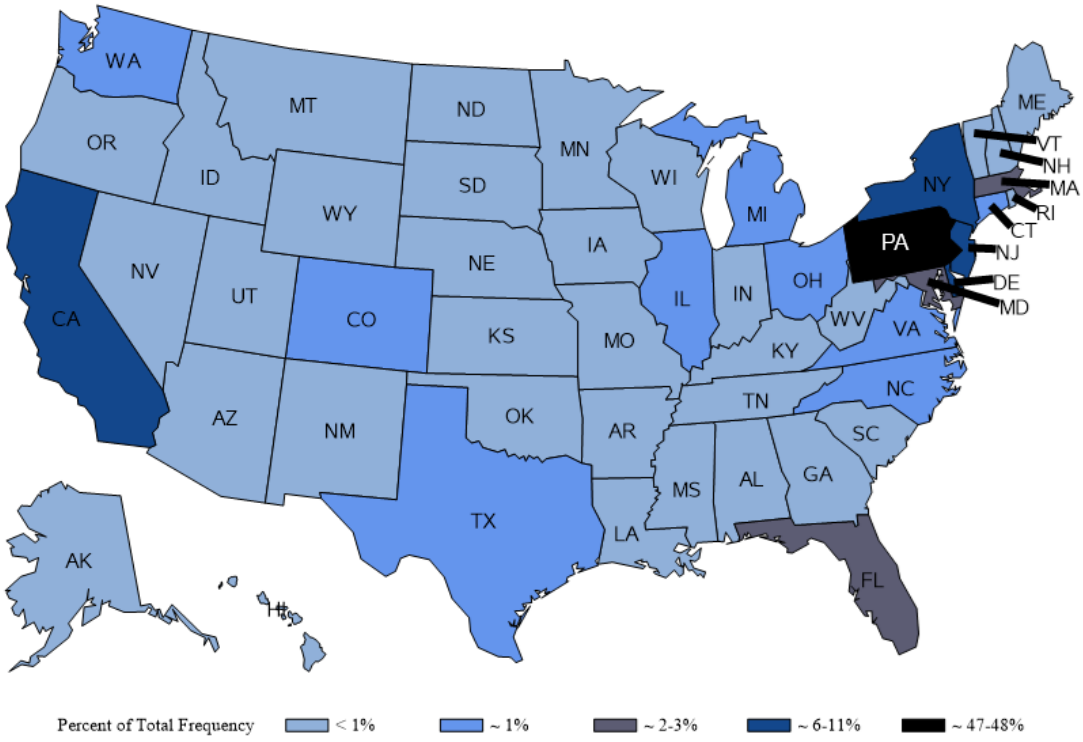

The accelerated program had been a 5-year combined BS-MD program before 1984. During the transition year 1984, no students were admitted to the program. It became a 6-year program between 1985-2015. Thereafter, it became a 7-year program. Increase in age of accelerated students in 1985 and 2017 is due to the changes in the length of the program.

*Asano*

The new JeffMD curriculum was implemented in 2017, shown by vertical dash-line.

**Exhibit 9**
**Home State**

**Entering Classes of 1970-2026**




**Entering Classes of 2016-2026**

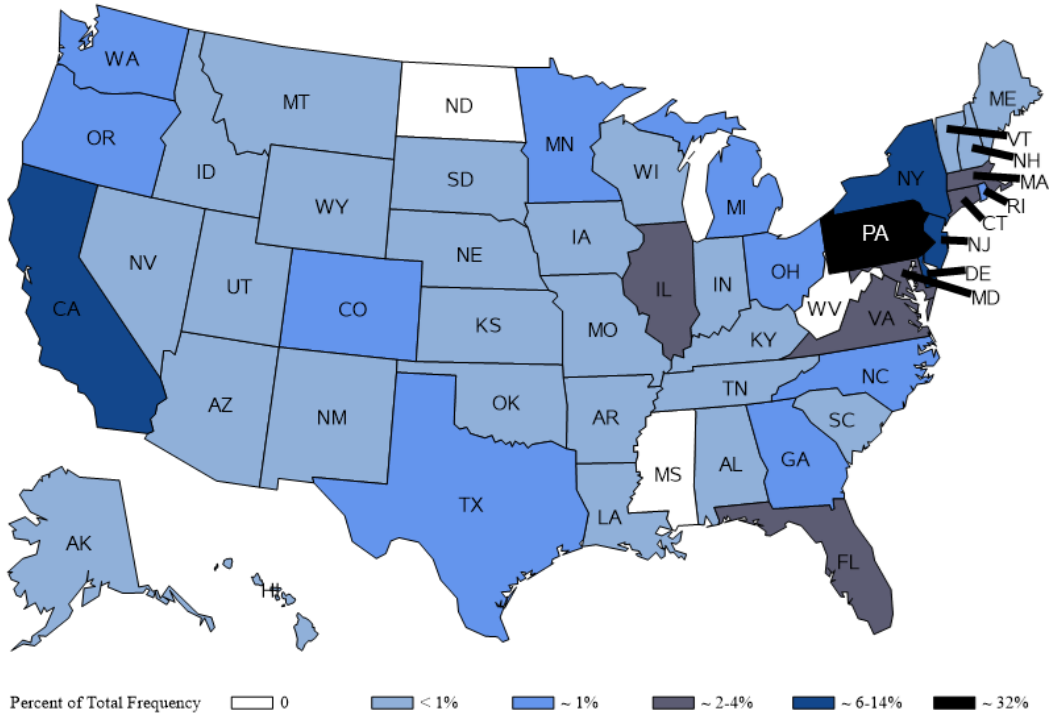
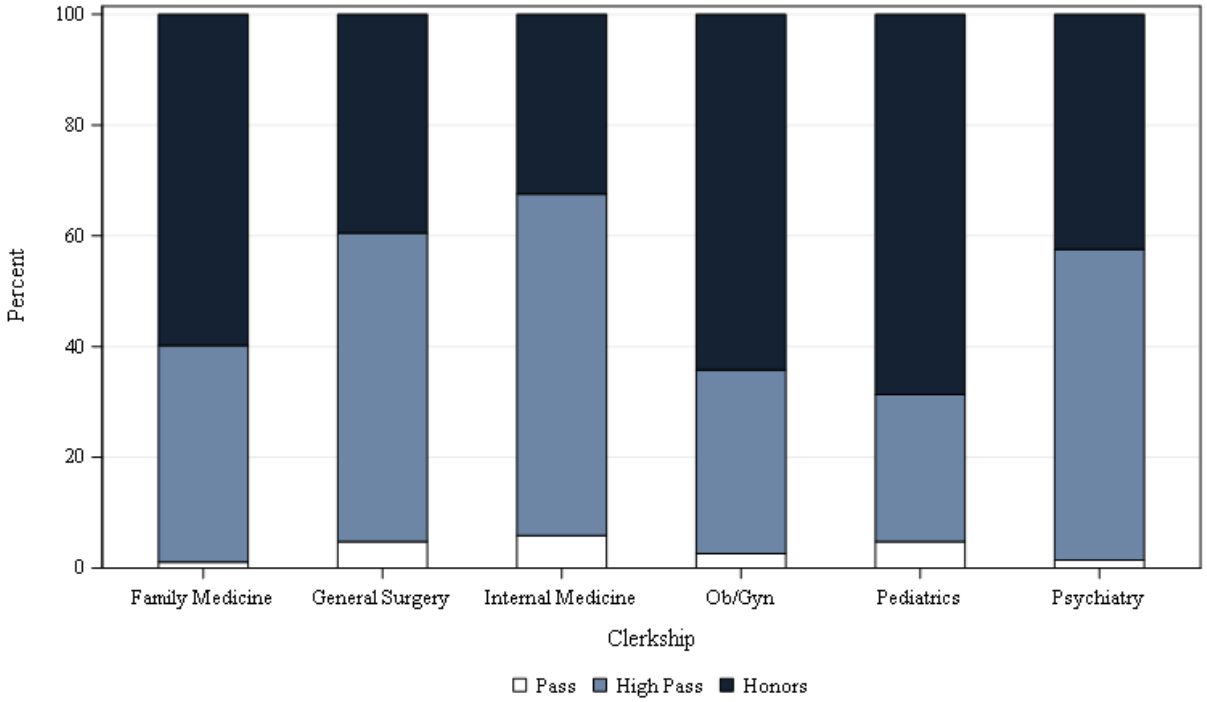
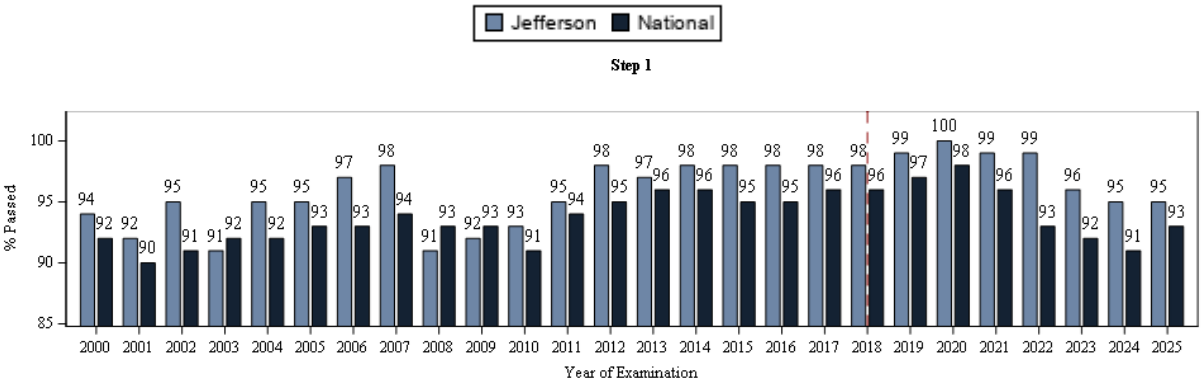


**Exhibit 10**
**Clinical Rating of Students for Six Core Clerkships***
**Graduating Class of 2026**

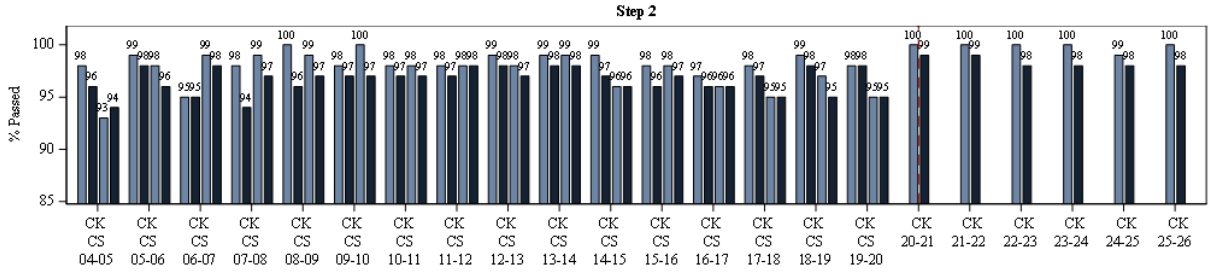



*Faculty's global rating of students' clinical competence. The clerkships completed by students that were in the Longitudinal Integration Curriculum (LIC) track occurred for a full academic year. For non-LIC students, however, the clerkships of Family Medicine, General Surgery, Ob/GYN, Pediatrics, and Psychiatry were 6 weeks in duration; and the Internal Medicine clerkship was 8 weeks in duration.

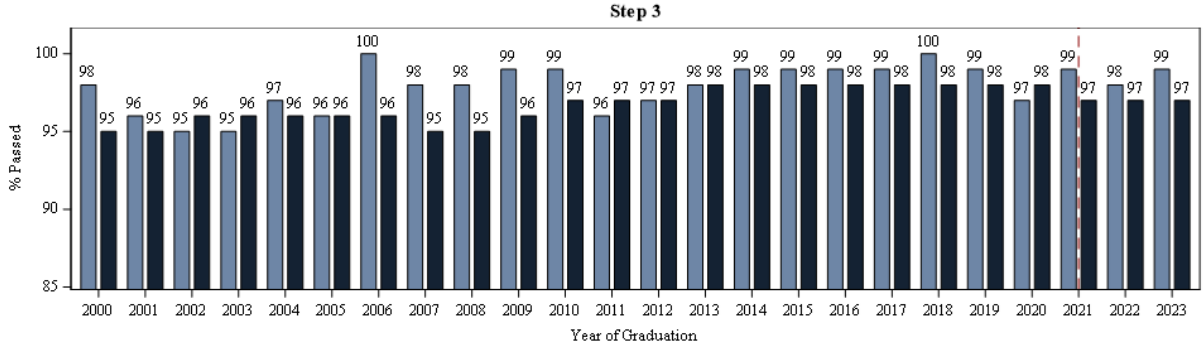
## Exhibit 11
## Pass Rates on the United States Medical Licensing Examination (USMLE)




Data is presented for the candidate reference group who took the examination for the first time each year and who were two years from expected graduation. The vertical dash-line indicates the first JeffMD cohort. The JeffMD curriculum started in 2017.

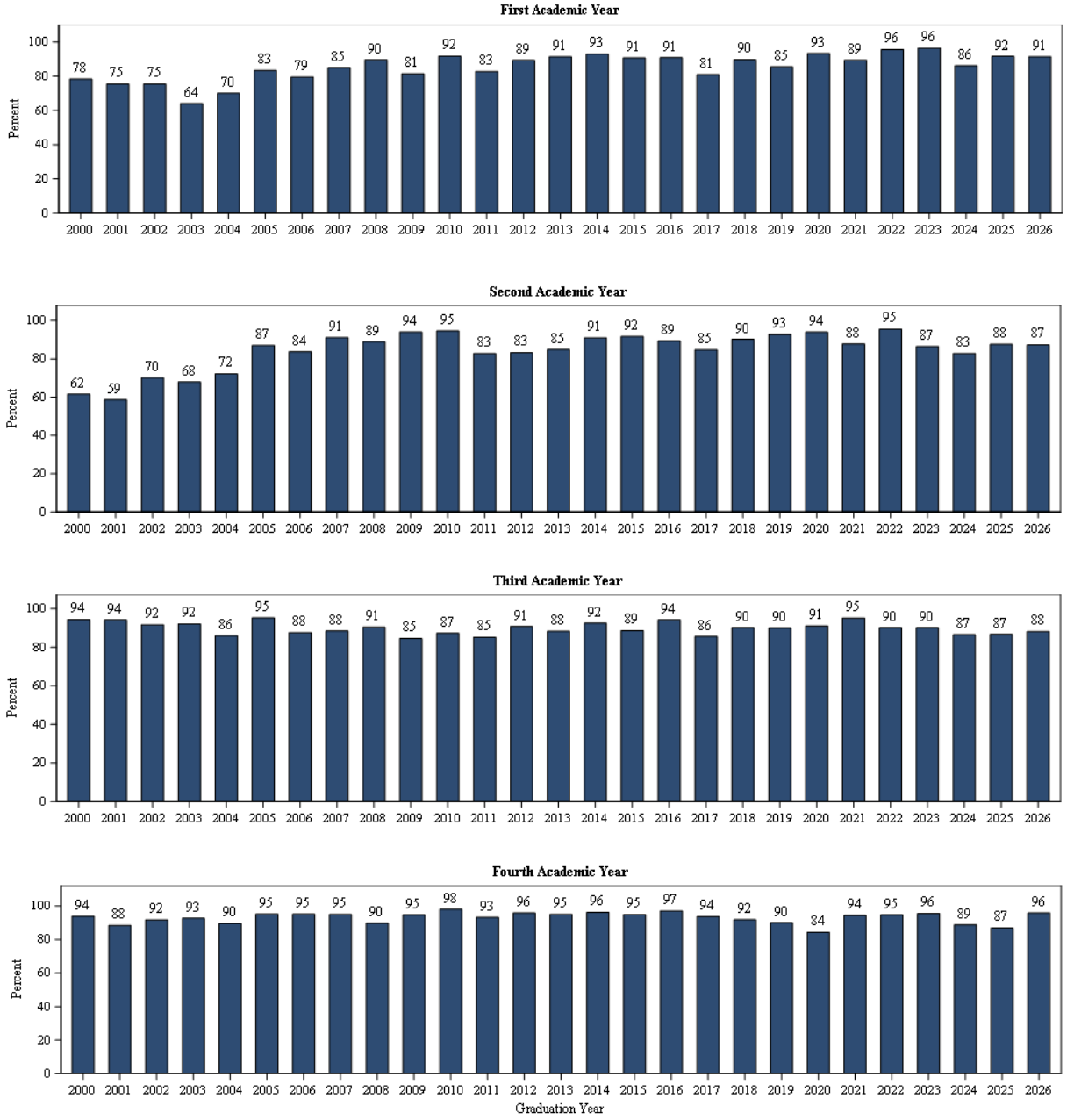



Data is presented for the candidate reference group who took the examination for the first time each year and who were one year from expected graduation. Starting from July 2004, Step 2 reports 2 scores, one for Clinical Knowledge (CK) and another for Clinical Skills (CS). Starting from July 2020, Step 2 reports scores for Clinical Knowledge (CK) only. The vertical dash-line indicates the first JeffMD cohort.




Data is presented for graduates who took the examination for the first time in each year. The vertical dash-line indicates the first JeffMD cohort. The JeffMD curriculum started in 2017.

## Exhibit 12
## Percentage of Graduating Students Who Were Satisfied with the Jefferson Medical College Educational Programs*




*From graduation questionnaire of the Jefferson Longitudinal Study asking medical students the extent of their satisfaction with each medical school year on a 4-point scale (4=very satisfied, 3= satisfied, 2=dissatisfied, 1= very dissatisfied). Response rates ranged from 43% to 92%.

**Exhibit 13**

**Percentage of Seniors' Responses to the Following Question[1]:**

**"How well do you feel that education at Jefferson prepared you for a career in medicine?"**

**Graduating Classes of 2000-2026**

| | Scale Points | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Graduating Class | 1 Very Poorly | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Very Well | Mean Score |
| 2000 | 0% | 1% | 1% | 1% | 5% | 10% | 25% | 36% | 17% | 6% | 7.59 |
| 2001 | 0% | 1% | 4% | 3% | 5% | 12% | 24% | 39% | 10% | 3% | 7.17 |
| 2002 | 0% | 1% | 1% | 2% | 5% | 8% | 28% | 32% | 18% | 5% | 7.51 |
| 2003 | 0% | 0% | 1% | 4% | 4% | 7% | 29% | 37% | 15% | 3% | 7.44 |
| 2004 | 0% | 0% | 2% | 4% | 11% | 6% | 21% | 32% | 20% | 4% | 7.35 |
| 2005 | 0% | 1% | 0% | 1% | 2% | 6% | 17% | 43% | 20% | 10% | 7.98 |
| 2006 | 0% | 0% | 0% | 1% | 1% | 3% | 19% | 43% | 25% | 9% | 8.11 |
| 2007 | 0% | 0% | 0% | 1% | 2% | 4% | 21% | 38% | 27% | 6% | 7.98 |
| 2008 | 0% | 1% | 0% | 2% | 1% | 6% | 11% | 39% | 29% | 11% | 8.11 |
| 2009 | 0% | 0% | 0% | 1% | 3% | 5% | 17% | 37% | 30% | 6% | 7.99 |
| 2010 | 0% | 0% | 0% | 0% | 1% | 4% | 12% | 39% | 27% | 16% | 8.33 |
| 2011 | 0% | 0% | 0% | 3% | 1% | 6% | 20% | 39% | 26% | 5% | 7.84 |
| 2012 | 0% | 0% | 0% | 0% | 1% | 3% | 17% | 43% | 28% | 8% | 8.18 |
| 2013 | 0% | 0% | 0% | 0% | 2% | 4% | 16% | 36% | 31% | 10% | 8.18 |
| 2014 | 0% | 0% | 2% | 0% | 0% | 3% | 13% | 37% | 30% | 15% | 8.31 |
| 2015 | 0% | 0% | 0% | 1% | 2% | 2% | 16% | 36% | 27% | 16% | 8.30 |
| 2016 | 0% | 0% | 0% | 0% | 1% | 3% | 13% | 29% | 39% | 14% | 8.41 |
| 2017 | 0% | 0% | 1% | 1% | 2% | 3% | 21% | 40% | 24% | 9% | 8.01 |
| 2018 | 1% | 0% | 0% | 0% | 1% | 5% | 17% | 38% | 30% | 8% | 8.11 |
| 2019 | 0% | 0% | 0% | 1% | 1% | 3% | 19% | 43% | 24% | 8% | 8.05 |
| 2020 | 0% | 0% | 1% | 2% | 1% | 4% | 19% | 38% | 26% | 9% | 8.01 |
| 2021 | 0% | 0% | 0% | 1% | 2% | 5% | 12% | 37% | 24% | 20% | 8.33 |
| 2022 | 0% | 0% | 1% | 0% | 1% | 3% | 13% | 30% | 29% | 23% | 8.51 |
| 2023 | 1% | 0% | 0% | 0% | 0% | 1% | 15% | 33% | 30% | 19% | 8.37 |
| 2024 | 0% | 0% | 1% | 1% | 1% | 2% | 15% | 26% | 31% | 22% | 8.42 |
| 2025 | 0% | 0% | 0% | 1% | 4% | 5% | 17% | 29% | 20% | 24% | 8.20 |
| 2026 | 0% | 0% | 1% | 0% | 4% | 6% | 14% | 31% | 20% | 21% | 8.19 |

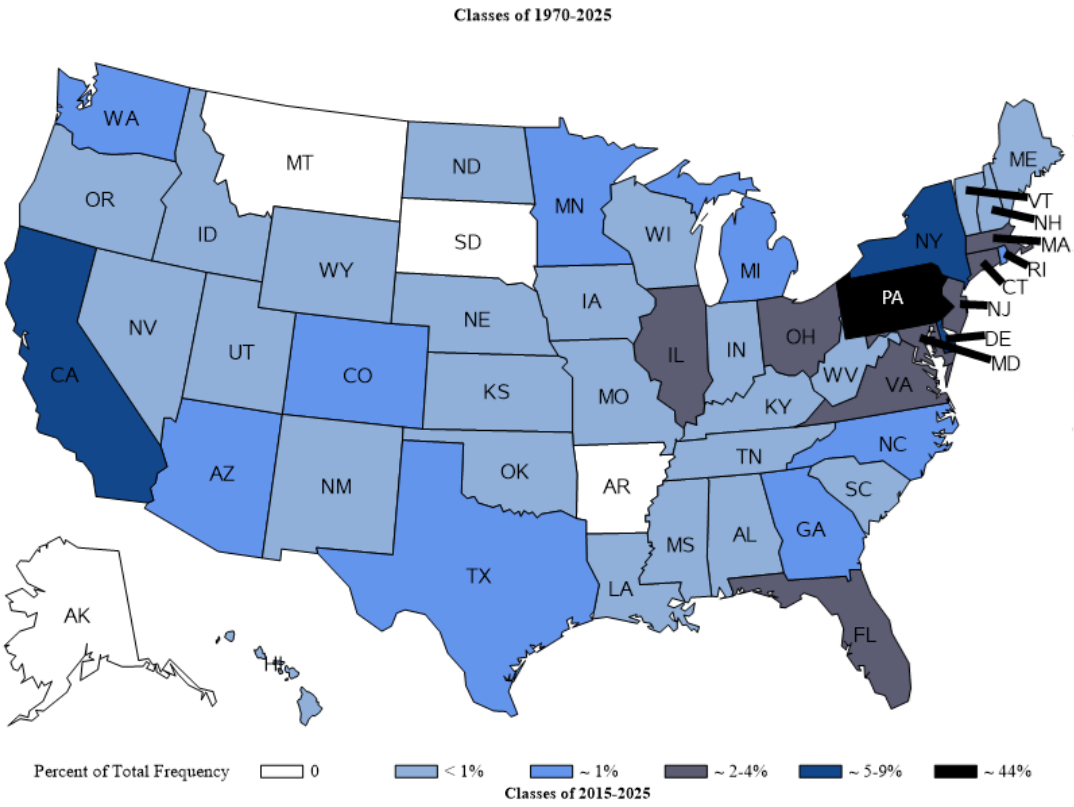
From the graduation questionnaires of the Jefferson Longitudinal Study. Response rates ranged from 43% to 93%.

**Exhibit 14**
**Graduation, Transfers, and Attrition**
**Entering Classes of 2000-2022**

| Entering Class | | % Graduate | | | % Transferred | % Did Not Graduate**** |
|---|---|---|---|---|---|---|
| Year | Size | On Time* | Late** | | | |
| | | | Academic*** | Non-Academic | | |
| 2000 | 223 | 89.7% | 4.5% | 3.6% | 0.0% | 2.2% |
| 2001 | 224 | 87.9% | 3.6% | 4.9% | 1.3% | 2.2% |
| 2002 | 227 | 87.7% | 3.5% | 3.5% | 0.4% | 4.8% |
| 2003 | 229 | 89.1% | 4.4% | 1.7% | 0.9% | 3.9% |
| 2004 | 228 | 84.6% | 2.2% | 9.2% | 0.4% | 3.5% |
| 2005 | 254 | 89.0% | 2.4% | 5.9% | 0.4% | 2.4% |
| 2006 | 255 | 85.1% | 4.3% | 7.8% | 0.0% | 2.7% |
| 2007 | 259 | 83.4% | 4.2% | 8.5% | 0.4% | 3.5% |
| 2008 | 254 | 85.0% | 2.4% | 9.4% | 0.0% | 3.1% |
| 2009 | 256 | 87.5% | 4.3% | 6.3% | 0.0% | 2.0% |
| 2010 | 260 | 83.1% | 2.3% | 11.2% | 0.0% | 3.5% |
| 2011 | 260 | 93.5% | 0.4% | 5.0% | 0.0% | 1.2% |
| 2012 | 261 | 88.5% | 6.1% | 4.6% | 0.0% | 0.8% |
| 2013 | 259 | 89.2% | 2.3% | 8.5% | 0.0% | 0.0% |
| 2014 | 260 | 82.3% | 1.9% | 13.5% | 0.0% | 2.3% |
| 2015 | 267 | 81.3% | 1.5% | 14.6% | 0.0% | 2.6% |
| 2016 | 267 | 81.6% | 1.5% | 15.7% | 0.0% | 1.1% |
| 2017 | 273 | 81.3% | 3.3% | 13.2% | 0.0% | 2.2% |
| 2018 | 269 | 79.6% | 1.1% | 17.5% | 0.0% | 1.9% |
| 2019 | 272 | 83.8% | 1.5% | 13.2% | 0.0% | 1.5% |
| 2020 | 266 | 80.8% | 0.4% | 17.3% | 0.0% | 1.5% |
| 2021 | 281 | 76.2% | 5.0% | 14.6% | 0.0% | 4.3% |
| 2022 | 272 | 77.2% | 0.7% | 17.3% | 0.0% | 4.8% |

* Includes graduates from combined degree programs.
** Delayed graduation for current students includes those on leave of absence.
*** Delayed graduation for not meeting academic standards.
**** Includes withdraw, dismiss, and deceased students.

**Exhibit 15**
**Location of First Year Postgraduate Education**



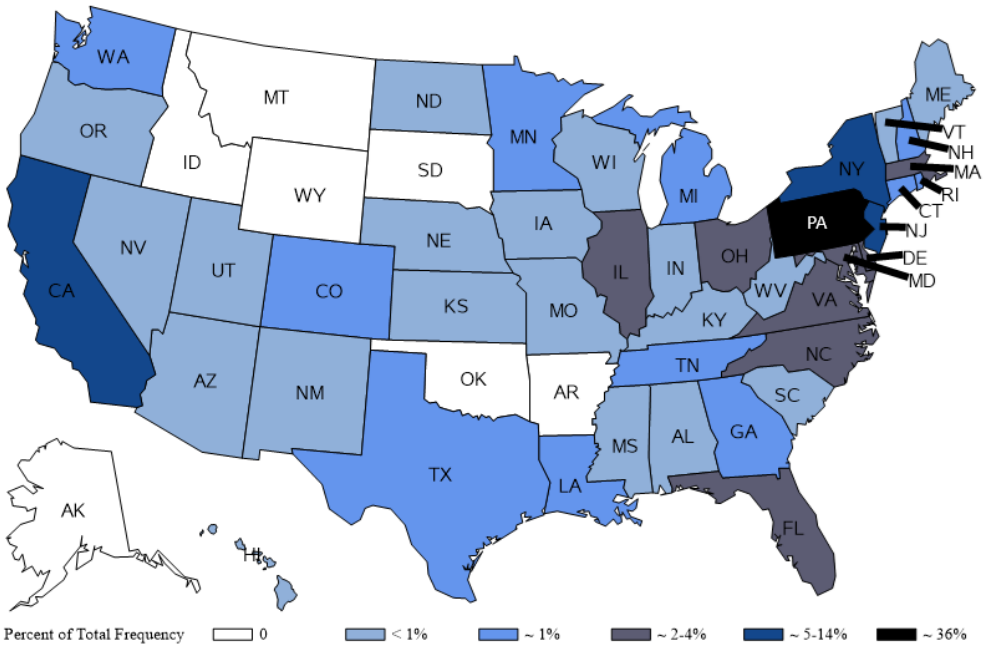
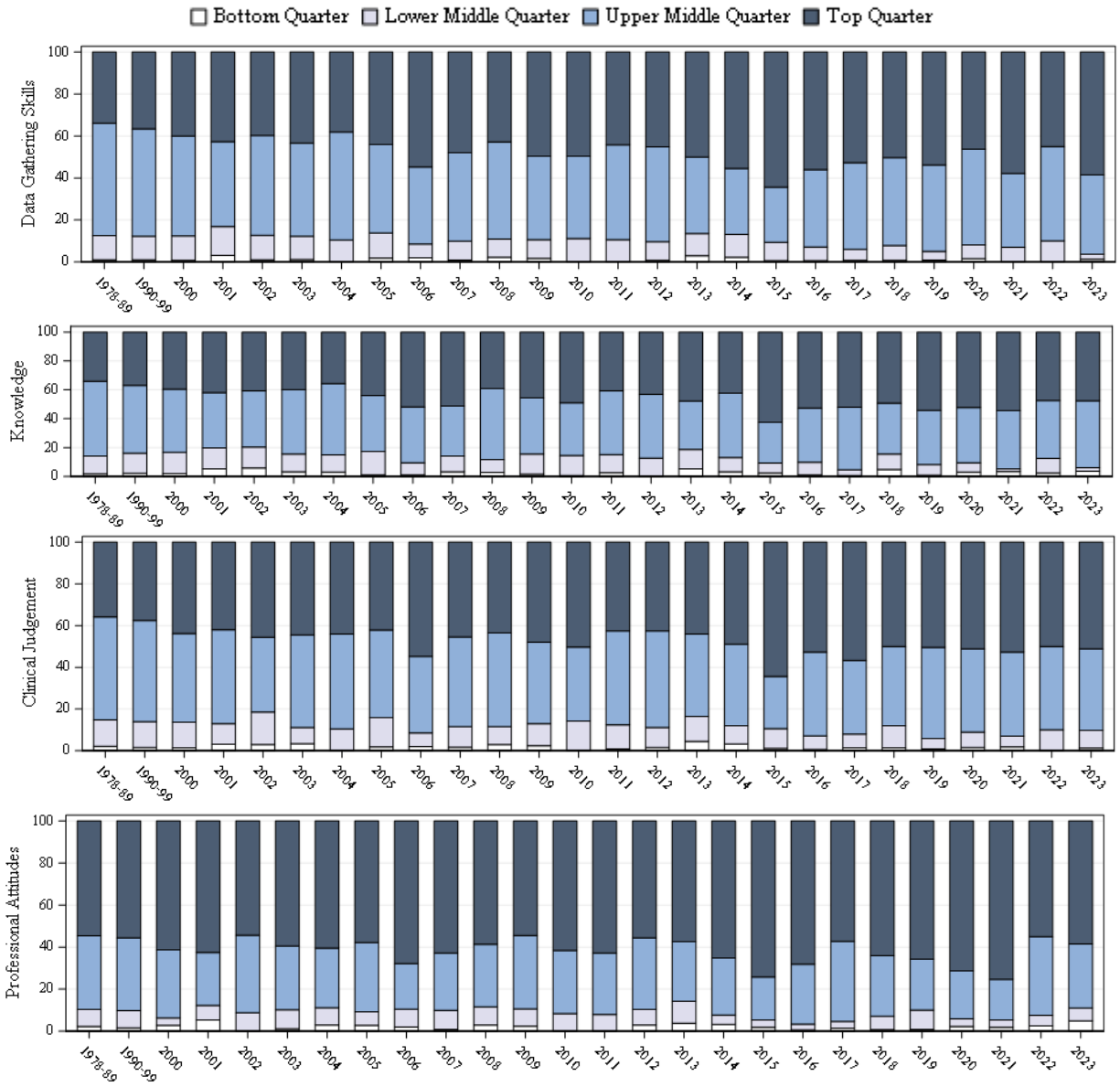



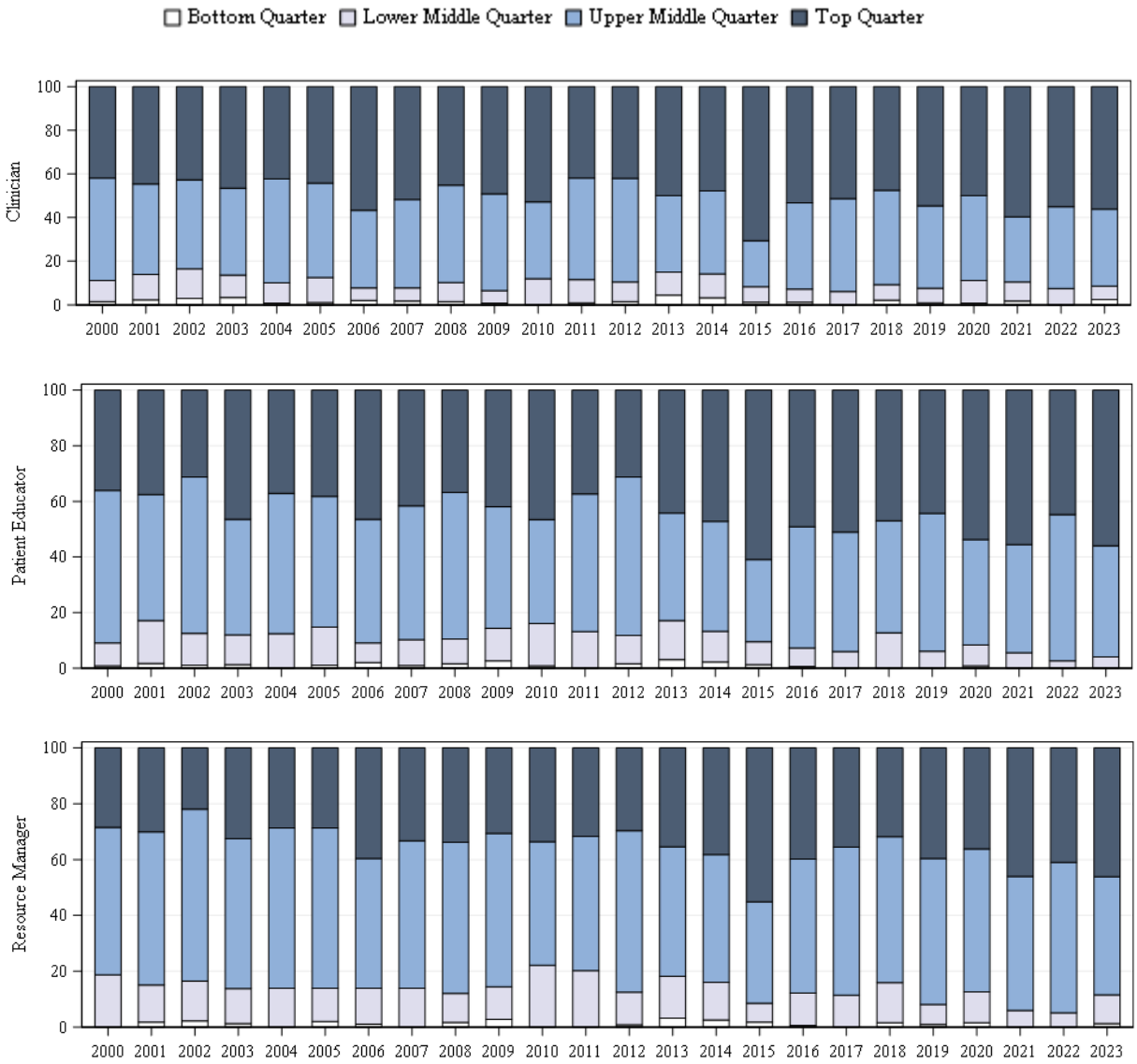
**Exhibit 16**
**Program Directors' Ratings in the First Postgraduate Year***
**Graduating Classes of 1978-2023**




*Response rates vary among classes, ranging from 16% to 83%. Each response rate is calculated based on the total number of graduates in the class. Starting in the spring of 2026, the Center discontinued directly collecting directors' ratings of residents' performances during their first post-graduate year. The graduating class of 2023 is the last class for which such data was collected. Going forward, the Center will report on AAMC Resident Readiness Survey data for residents that graduated from Sidney Kimmel Medical College during the spring of 2024 and later.

Program directors rated the graduates on 4-point scale comparing them with all graduates they ever supervised. See Section III of the postgraduate rating form on page 41 of this report.

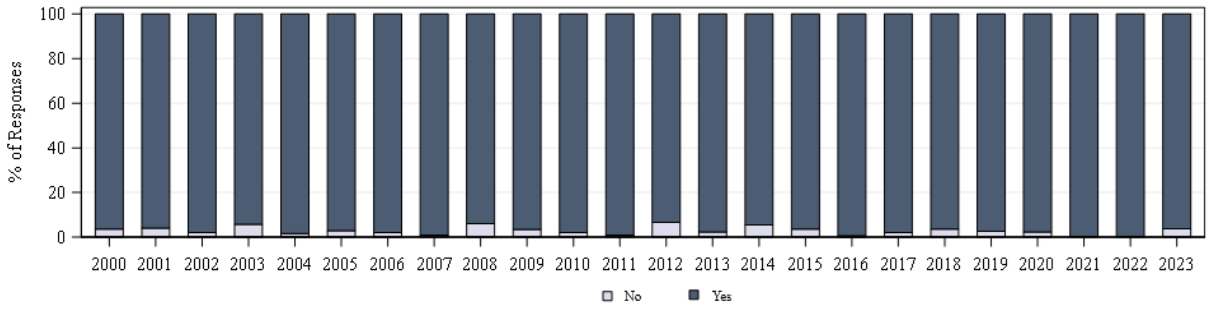
**Exhibit 17**
**Program Directors' Ratings on Graduates' Ability to Perform the Three Roles of Clinician, Patient Educator, and Resource Manager in the First Postgraduate Year. * Graduating Classes of 2000-2023**




*Response rates vary among classes, ranging from 15% to 72%. Each response rate is calculated based on the total number of graduates in the class. Starting in the spring of 2026, the Center discontinued directly collecting directors' ratings of residents' performances during their first post-graduate year. The graduating class of 2023 is the last class for which such data was collected. Going forward, the Center will report on AAMC Resident Readiness Survey data for residents that graduated from Sidney Kimmel Medical College during the spring of 2024 and later.

Program directors rated the graduates on 4-point scale comparing them with all graduates they ever supervised. See Section III of the postgraduate rating form on page 41 of this report.

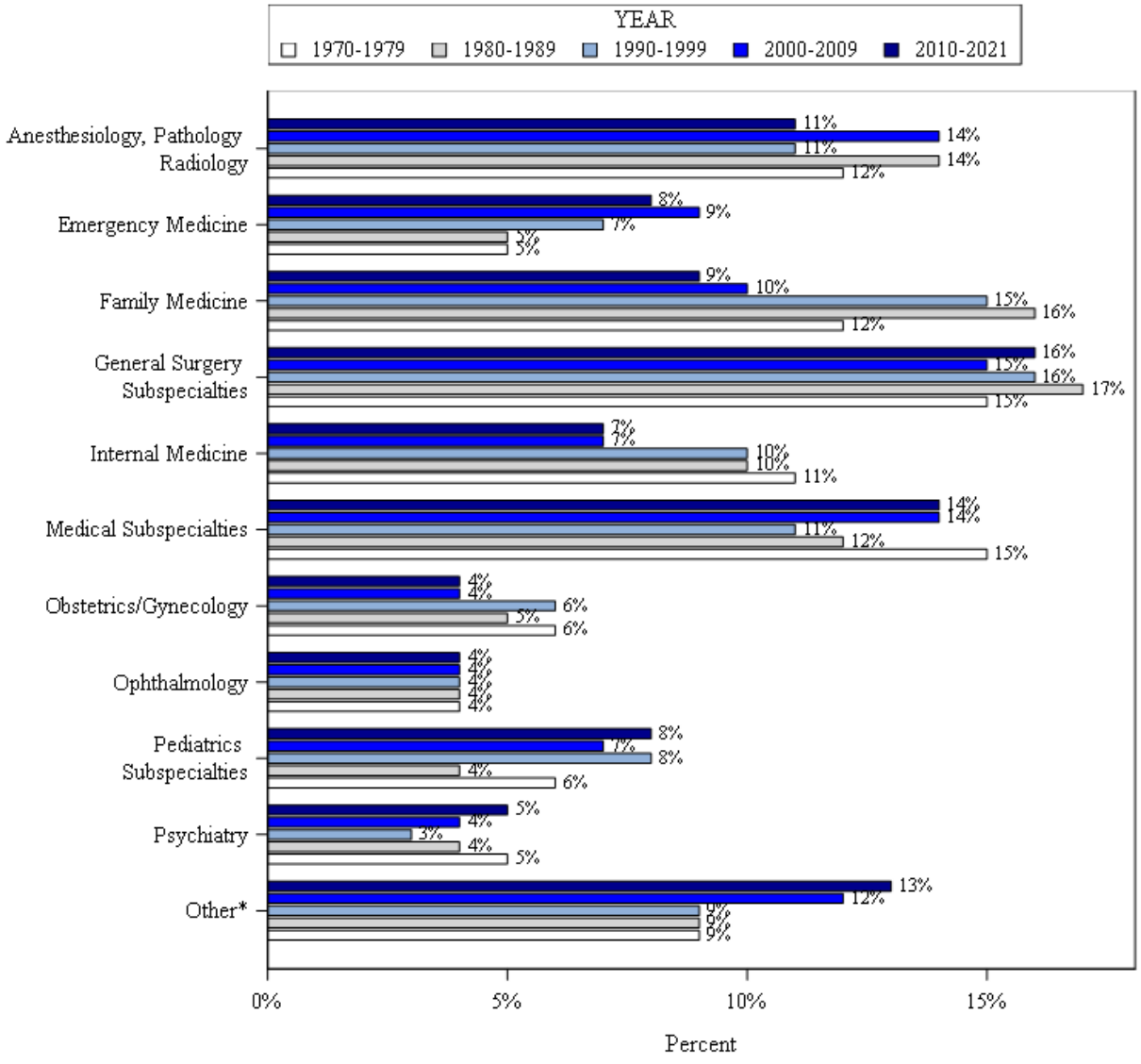
**Exhibit 18**
**Program Directors' response to "Does This Resident Have the Qualities You Would Like to See in Your Own Physician***
**Graduating Classes of 2000-2023**




*Response rates vary among classes, ranging from 15% to 72%. Each response rate is calculated based on the total number of graduates in the class. Starting in the spring of 2026, the Center discontinued directly collecting directors' ratings of residents' performances during their first post-graduate year. The graduating class of 2023 is the last class for which such data was collected. Going forward, the Center will report on AAMC Resident Readiness Survey data for residents that graduated from Sidney Kimmel Medical College during the spring of 2024 and later.

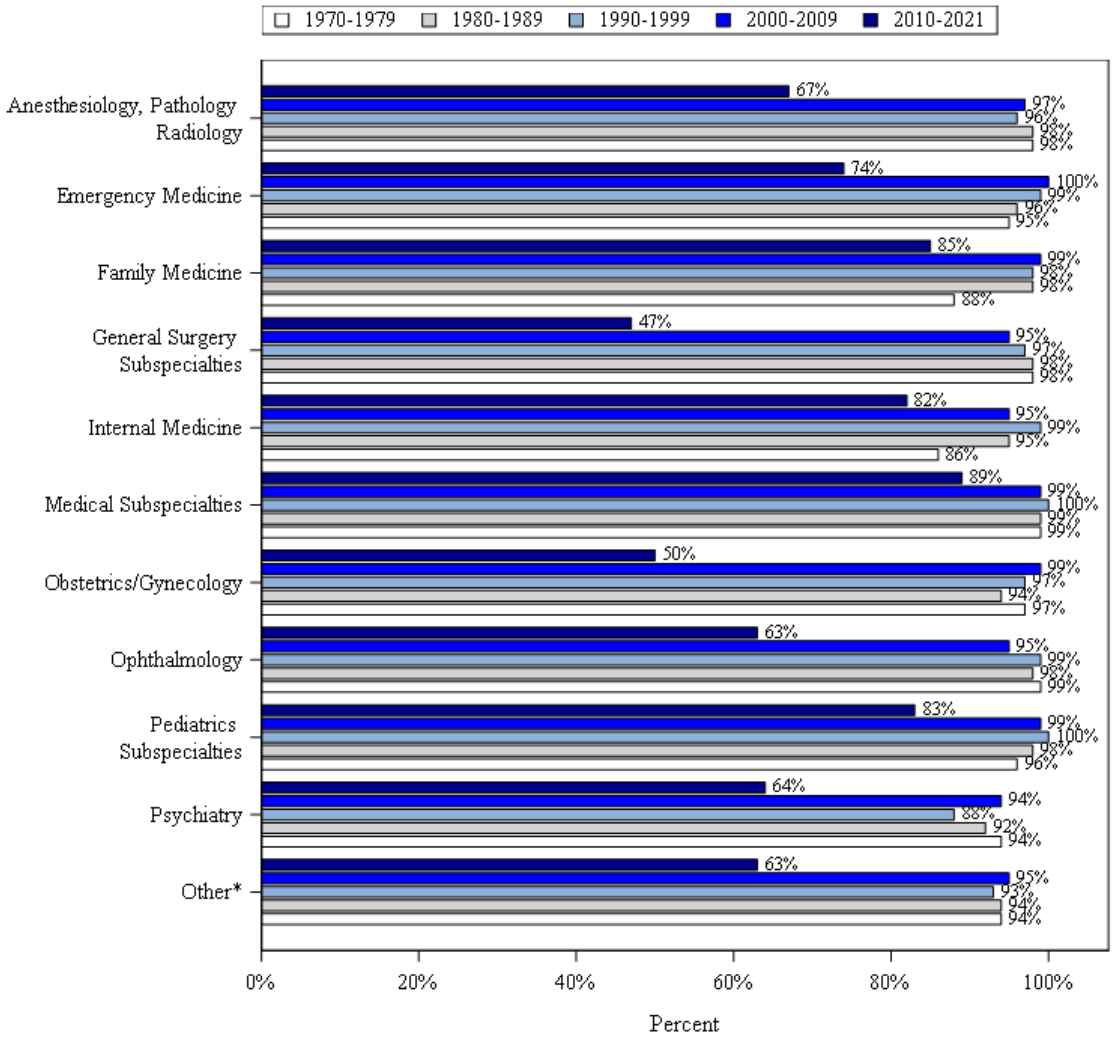
Program directors rated the graduates on Yes, No scale comparing them with all graduates they ever supervised. See Section VIII of the postgraduate rating form in this report.

**Exhibit 19**
**Specialties of Alumni***
**Graduating Classes of 1970-2021**




*"Other" includes 51 specialties and subspecialties, each representing 5% or less than the total alumni.
Source: American Medical Association, American Board of Medical Specialties.

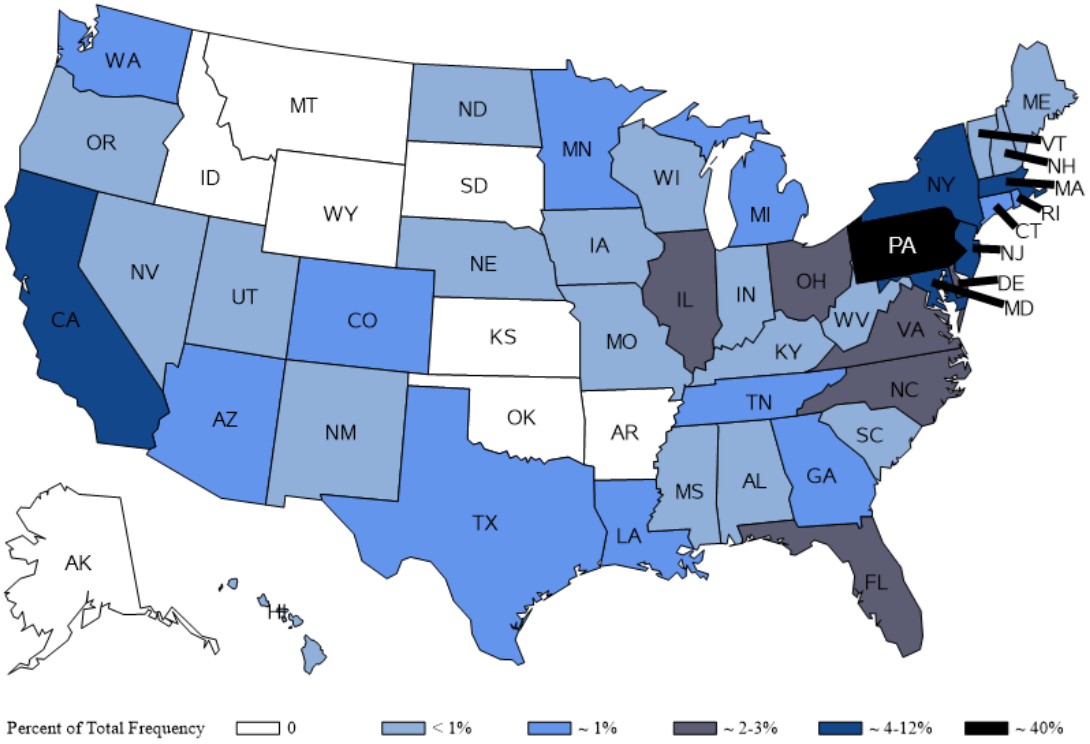
## Exhibit 20
## Board Certification of Alumni by Specialty*
## Graduating Classes of 1970-2021




Percentages are based on the total graduates in each specialty.
*"Other" includes 47 specialties and subspecialties, each representing 5% or less of the total alumni.
Source: American Medical Association.

**Exhibit 21**
**Current Location of Living Alumni**

**Graduating Classes of 2010-2020**



# Postgraduate Rating Form

Jefferson
Thomas Jefferson University
HOME OF SIDNEY KIMMEL MEDICAL COLLEGE

Asano-Gonnella Center for Research in Medical Education and Health Care

## POSTGRADUATE RATING FORM

| **I. Please rate the resident in each of the following items by circling the appropriate number. In making the ratings please compare this resident with all residents you have supervised, not just with those in your recent group.** | Top Quarter | Upper Middle Quarter | Lower Middle Quarter | Bottom Quarter | Insufficient Information to Judge |
|---|---|---|---|---|---|
| 1. Attention to collection of data related to health risks | 4 | 3 | 2 | 1 | X |
| 2. Collection of history of the present illness from the patient or family | 4 | 3 | 2 | 1 | X |
| 3. Ability to communicate effectively with patients and their families | 4 | 3 | 2 | 1 | X |
| 4. Ability to act effectively in an emergency | 4 | 3 | 2 | 1 | X |
| 5. Competence in performing physical examination | 4 | 3 | 2 | 1 | X |
| 6. Willingness to ask for help when needed | 4 | 3 | 2 | 1 | X |
| 7. Attention to psychological and emotional factors related to the patient's health | 4 | 3 | 2 | 1 | X |
| 8. Use of literature in diagnosis and treatment | 4 | 3 | 2 | 1 | X |
| 9. Documentation of reasons for obtaining laboratory data | 4 | 3 | 2 | 1 | X |
| 10. Counseling patients about preventive care and wellness | 4 | 3 | 2 | 1 | X |
| 11. Thoroughness of differential diagnosis | 4 | 3 | 2 | 1 | X |
| 12. Awareness of socio-psychological factors affecting patient's condition | 4 | 3 | 2 | 1 | X |
| 13. Ability to handle anxiety-producing situations | 4 | 3 | 2 | 1 | X |
| 14. Adherence to professional ethical standards | 4 | 3 | 2 | 1 | X |
| 15. Knowledge of basic science areas most closely related to postgraduate program | 4 | 3 | 2 | 1 | X |
| 16. Judgment in implementing care | 4 | 3 | 2 | 1 | X |
| 17. Effectiveness as a teacher of medical students and/or other health professionals | 4 | 3 | 2 | 1 | X |
| 18. Willingness to admit an error in judgment | 4 | 3 | 2 | 1 | X |
| 19. Willingness to proceed independently when appropriate | 4 | 3 | 2 | 1 | X |
| 20. Relationships with other health care personnel | 4 | 3 | 2 | 1 | X |
| 21. Thoroughness in collection of pertinent past history of the patient | 4 | 3 | 2 | 1 | X |
| 22. Thoroughness and organization of medical records | 4 | 3 | 2 | 1 | X |
| 23. Collection of the patient's family history | 4 | 3 | 2 | 1 | X |
| 24. Thoroughness in obtaining information from patients or families related to the patient's chief complaint | 4 | 3 | 2 | 1 | X |
| **II. Please rate the resident's <u>overall</u> performance in the following areas:** | | | | | |
| 1. Knowledge | 4 | 3 | 2 | 1 | X |
| 2. Data-Gathering Skills | 4 | 3 | 2 | 1 | X |
| 3. Clinical Judgment | 4 | 3 | 2 | 1 | X |
| 4. Professional Attitudes | 4 | 3 | 2 | 1 | X |
| **III. If one assumes that a physician serves not only as a clinician, but also as a patient educator and a manager of health care resources, how would you rate this resident in these areas:** | | | | | |
| 1. Clinician | 4 | 3 | 2 | 1 | X |
| 2. Patient educator | 4 | 3 | 2 | 1 | X |
| 3. Manager of health care resources | 4 | 3 | 2 | 1 | X |

*Please see other side~*

**IV.** How do you rate this resident's **empathetic behavior** *(defined as an understanding of the patients' inner experiences and perspective, and a capability to communicate this understanding)* on the following 10-point scale:

Not empathetic at all — Very empathetic all the time

1 . . . . . 2 . . . . . 3 . . . . . 4. . . . . 5 . . . . . 6 . . . . . 7 . . . . . 8 . . . . . 9 . . . . . 10

**V.** Does your hospital offer a program in this resident's specialty?

- ❍ Yes–**If Yes**, was this resident offered further postgraduate training at your hospital? ❍ Yes ❍ No.
- ❍ No–**If No**, if your hospital had a program in this specialty, would he or she have been offered a place at your institution? ❍ Yes ❍ No.
- ❍ Other, please comment _____

**VI.** Was the resident's performance consistent with the hospital's expectation at the time of acceptance?

- ❍ Yes, *(describe)* _____
- ❍ No, *(describe)* _____

**VII.** Was the dean's letter of recommendation predictive of the resident's performance?

- ❍ Yes, *(describe)* _____
- ❍ No, *(describe)* _____

**VIII.** Does this resident have qualities you would like to see in your own physician?

- ❍ Yes, *(describe)* _____
- ❍ No, *(describe)* _____

Thank you again for your help with this IRB approved evaluation.
If you have any questions concerning this form, or suggestions for improvement, please contact:

**Mohammadreza Hojat, PhD - (215) 955-9459**

(Mohammadreza.Hojat@jefferson.edu)

*Please return this form to:*

**Center for Research in Medical Education and Health Care**

**SIDNEY KIMMEL MEDICAL COLLEGE at**
**THOMAS JEFFERSON UNIVERSITY**
**1015 Walnut Street, Suite 319**
**Philadelphia, PA 19107**

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