General Scholarly Article

Past Imperfect: Revisiting the History of the Federation of State Medical Boards

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ABSTRACT: In 2020, FSMB commenced a closer look at its history to provide a more transparent accounting of past statements, actions and policies evincing bias, discrimination, or racism. There is much in FSMB history that is positive but it is clear that FSMB fell short at times in demonstrating a consistent commitment to values we recognize as integral to a just society. This failure proved especially impactful to international medical graduates (IMGs), osteopathic physicians, women, and persons of color. Vitriolic language, under-representation and bias factored into the FSMB experience of these groups to varying degrees.

While some FSMB statements and policies reflected overt bias, more often, inaction or silence characterized FSMB response to discrimination unfolding within the medical profession and society. This can be attributed, in part, to the long period in which FSMB's modest resources created over-reliance upon the profession (eg, the American Medical Association). This dependence resulted in missed opportunities for FSMB to champion priorities committed to the responsibilities and interests of the *regulatory* community and the public it serves, as opposed to those of the profession. Unsurprisingly, FSMB governance reflected the same power dynamics and lack of diversity seen within leadership in the profession until recent decades.

FSMB has taken multiple steps to address past failures: revisiting how it recognizes and honors individual contributors to medical regulation, adopting policy statements and guidelines codifying a commitment to inclusive governance and educational programming. Further actions are possible through naming conventions behind FSMB awards and potential policy addressing the appointive process to state medical boards.

Introduction

As a nation, we have struggled at times to grapple with the unpleasant elements of our past, preferring a comforting narrative that combines American exceptionalism with simplistic depictions of complex historical persons and events. In more recent years, we have witnessed a surge in public accountability on the part of public and private institutions and organizations to address our imperfect past.

This accountability flows from a growing societal willingness to confront and acknowledge harmful past actions. Within American medicine, we have witnessed a similar effort to reexamine the past through a contemporary lens, one expanded and attuned to the impact of earlier actions and policies upon groups and individuals often lacking the power, influence, and resources to push back effectively in defense of their rights and interests.[1]

In general, organizational, and institutional willingness to reexamine that past has taken 2 forms. The first involves reconsidering those individuals chosen for various honors and what form such recognition takes. The second involves taking a fresh look at the past words and actions of organizations and institutions exerting influence within medicine and society.

Perhaps the best-known public-facing examples within medicine involve a pair of 19th century physicians, Nathan Smith Davis and J. Marion Sims. While historians of medicine have long been familiar with troubling aspects in both men's careers, it was only in recent years that the medical profession as a whole, and the public in general, came to appreciate fully the respective role of these men in 2 particular instances: denying membership of Black physicians into the American Medical Association (AMA)[2] and inflicting painful surgical procedures on enslaved women.[3] Within the past 4 years, statues honoring both men were removed from public displays at the AMA's national offices in Chicago and in New York City's Central Park.

Dialogue within the FSMB

These prominent examples are shared to contextualize discussions held over the last 3 years by the Board of Directors (Board) of the Federation of State Medical Boards (FSMB). Beginning in 2020 and continuing into early 2023, FSMB Board Chairs Drs. Cheryl Walker-McGill, Kenneth Simons, and Sarvam TerKonda asked senior FSMB staff to review all available information and data available in several areas of specific interest: (1) diversity over time within FSMB's board governance, (2) statements by, and decisions of, early FSMB leaders, and (3) policies and actions by FSMB evincing potential bias and/or discrimination. This internal review led to a series of conversations culminating in multiple actions taken by FSMB, including the drafting of this manuscript.

One action involved reconsidering who and how FSMB recognizes and honors past leadership. For many years, the organization recognized Drs. Walter Bierring (Iowa), Herbert Platter (Ohio), and Bryant Galusha (North Carolina) with events named in their honor at the FSMB Annual Meeting. The Platter Luncheon, Galusha Lecture, and Bierring Dinner stood as fixtures on the FSMB Annual Meeting's educational program for decades.

As the FSMB Board considered the honors bestowed upon these individuals and others, the conversation shifted from focusing on the contributions of these men—all of which were undoubtedly significant—to a broader set of questions.

- What was the nature of the process and decision-making that led to these honors?
- Were there others FSMB failed to recognize that merited similar honor and recognition?
- Is it wise to link individuals to annual organizational events knowing that the passage of time reduces any named individual to an abstraction without immediacy or personal connection to later generations?

These are not insignificant questions. Historians have reminded us: "…the use of any name from the past carries meanings about what our values are in the present."[4]

Ultimately, the FSMB Board decided to discontinue its practice of honoring specific individuals with events on its Annual Meeting program or awards issued by the organization. The Board made this decision in pursuit of a fundamentally different approach to honoring individuals, not as a reaction to any prior actions by these men. The organization chose to rename events and awards to reflect more general titles consistent with the values and mission of the FSMB. Thus, one of the organization's highest honors is now simply titled the FSMB Leadership Award.

While the rationale for this action on the part of FSMB is understandable, it comes at a cost. The conscious decision to move away from the hagiographic honoring of specific individuals means surrendering an opportunity to honor a more diverse group of contributors to FSMB and the medical regulatory community. This approach also means deferring, if not avoiding entirely, more challenging questions: What can be achieved by honoring specific individuals? What values do we hold dear today? What do we lose by jettisoning honorifics at precisely the time when the pool of potential honorees available for consideration is more heterogenous than ever? Do we also miss a chance to reflect upon the "collective nature" behind so much of medical advancement—the important community and professional networks supporting individual endeavor?[5]

In April 2021, the Board's ongoing conversations and the national dialogue on systemic racism and structural inequalities led FSMB to issue a statement affirming its commitment to supporting an equitable healthcare system by embracing efforts to support diversity, equity, and inclusion in medical regulation. In that statement, the FSMB publicly acknowledged its historical role within the broader system of medicine, medical education and training, patient care, and medical regulation:

> "The FSMB's mission involves supporting state medical boards in their efforts to ensure safety for all patients. *We acknowledge our role in a system that has allowed racist, biased, and inequitable influences to hinder that safety and harm patients, and we commit to identifying, addressing, and dismantling those influences.*"[6]

Following issuance of this statement, the Board continued its internal review of the organization's past, including taking a closer look at less salutary elements in the organization's history—aspects of its past that at times reflected conscious bias and discrimination, but more often featured silence in the face of questionable actions undertaken by other groups. Ultimately, the Board determined that certain elements of the FSMB's history demanded

greater transparency with both its membership and the public; that merely acknowledging participation in a broader system characterized by inequity was not enough. Instead, FSMB felt it should state clearly and directly *what* it is acknowledging within the organization's imperfect past and *who* it disadvantaged through actions, statements, or policies.

What follows are highlights of the information and data shared by staff with FSMB's Board governance as part of the organization's internal review and assessment of its role and relationship within the broader system of American medical regulation and medical education, dating back to the earliest years of the organization's existence.

The FSMB Assesses its Past

For more than a century, FSMB has supported America's state medical boards in their mission of public protection. Since its establishment in 1912,[7] FSMB has served as an advocate for this nation's system of state-based medical licensure and discipline, as a forum for developing regulatory policy and best practices and, over the past half century, as a provider of key resources (eg, disciplinary data bank, credentialing services, examinations) to state medical boards.

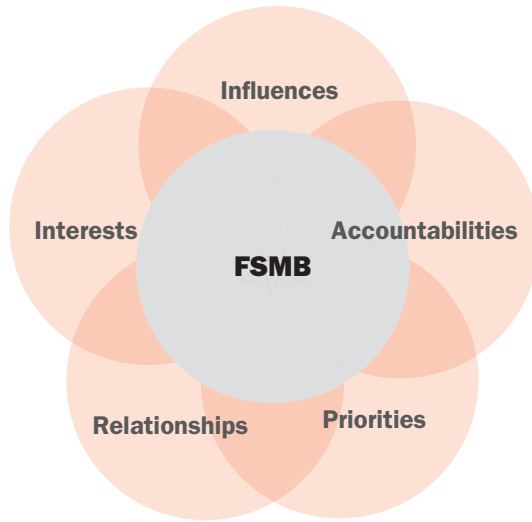
It is also important to understand the structure of FSMB and its relationship to state medical boards. FSMB operates as a national 501c6 not-for-profit membership association—one whose members are the individual state and territorial medical licensing boards in the US. State medical boards are not required to join FSMB, nor are they mandated to adopt policies and/or positions approved through the FSMB's House of Delegates. Similarly, FSMB holds no directive authority over state medical boards compelling compliance with adopted policies or utilization of its services. In brief, FSMB leads largely by example, through policy recommendations, suggested best practices, model legislation and consensus-based position statements. Its leadership style remains fluid rather than fixed—sometimes operating in the vanguard of issues, while at other times riding the crest of a wave initiated by others, including those within medical regulation.

Like any organization, FSMB is a product of its times—both at its founding more than a century ago and in its current structure and priorities. While there is much to highlight that is positive and transformative in FSMB's century of service, such as its meaningful efforts to improve the quality of medical education and training of future physicians and successful efforts to create a single national medical licensing eligibility examination (in partnership with the NBME) acceptable to all states and territories, it is also clear that from time to time the organization fell short in demonstrating a commitment to values we recognize today as integral to a just society. This failure proved impactful to IMGs, osteopathic physicians, women, and persons of color. To contextualize FSMB actions impacting these groups, however, we must first understand the broader landscape at the time of FSMB's founding.

FSMB's Relationship with the Medical Profession

The past actions of any organization do not occur in a vacuum, independent of its surrounding environment. Since its founding in 1912, FSMB operates within, and adjacent to, a network of interconnected systems: educational, professional, political, associational, and regulatory. Figure 1 below represents overlapping influences, interests, relationships, priorities, and accountabilities; FSMB sits nestled within this confluence. This reality must be recognized and acknowledged as issues arising outside of FSMB but within this overlapping systems network influenced organizational decisions and policy.

Figure 1
Venn diagram representing FSMB's network of interconnected systems



The timing of FSMB's founding coincided with a critical period in American medicine: the early 20th century era of major reforms in medical education and solidification of the profession's

control over the practice of medicine through statutory measures. Here one sees the impact of professional interests through the combined efforts of the AMA and its Council on Medical Education, as well as deep-pocketed, highly influential philanthropic groups such as the Carnegie Foundation and the Rockefeller Institute.[8]

The critical meeting in 1911 leading to the creation of FSMB reflects this intersection of educational, regulatory, and professional interests. Participants included not just prominent medical regulators but leaders from the Association of American Medical Colleges (Fred Zapffe, William Harlow), the AMA Council (Arthur Dean Bevans, Nathan Colwell), and noted educator Abraham Flexner—the latter fresh from his published report on medical education commissioned by the Carnegie Foundation. These connections were perhaps predictable considering that FSMB's predecessor organization (National Confederation of State Medical Examining and Licensing Boards) held deep ties to AMA leadership and was widely perceived as acting in concert with the AMA, and later its Council, on educational reform efforts as early as the 1890s.[9]

The original FSMB charter codified mechanisms by which the profession could take an active role in the work and discussions of the regulatory community. The charter established an "associate member" category for individuals "interested in medical education and state licensure" who did not otherwise qualify as members of a state medical board. The depth of the profession's interest and influence on early FSMB affairs is aptly reflected by the authorship of the first article to appear in the *FSMB Quarterly*—the Carnegie Foundation's Henry Pritchett reflecting on the mutual interests of profession, educators, and regulator.[10]

This intersection of interests and influences should not surprise. The milieu within which FSMB arose featured licensing and educational reform efforts that were socially and politically conservative in nature. Scholars in recent years have constructed a compelling portrait for this era in which medical education reforms—extending even to the architectural design of the medical colleges—served to bolster "professional consciousness" and "collective identity" while simultaneously " reinforcing [existing] hierarchy" within medicine.[11] Impactful disadvantages flowing from these efforts (intentionally and otherwise) fell disproportionately on White women, Black Americans, and their respective medical colleges.[12] The ramifications were significant in creating a narrowed pipeline into medicine with consequently few opportunities for leadership roles within the profession, medical education and regulation.

Both professional and educational interests evinced keen awareness that statutory measures strengthening state medical boards could also be tailored to facilitate their desired educational reforms by codifying higher minimum qualifications for licensure into law. This goal served dual, complementary interests: addressing the profession's fears of physician "overcrowd[ing]," and statutorily supporting the educational community's ideal of an academic medicine structure based upon the Johns Hopkins model that included a strong financial underpinning through endowments and philanthropic outreach.[13] Abraham Flexner made this linkage explicit in his 1910 report, calling state medical boards the "instruments through which the reconstruction of medical education will be largely effected." He cast his eyes explicitly toward the proprietary medical colleges, hoping to see medical boards "crush" what he deemed "notoriously incompetent institutions."[14] Indeed, by 1929, FSMB formally adopted policy encouraging medical legislation in each state to "conform as far as possible with the principles" of the AMA Council and the Association of American Medical Colleges (AAMC).[15]

AS A NATION, WE HAVE STRUGGLED AT TIMES TO GRAPPLE WITH THE UNPLEASANT ELEMENTS OF OUR PAST, PREFERRING A COMFORTING NARRATIVE THAT COMBINES AMERICAN EXCEPTIONALISM WITH SIMPLISTIC DEPICTIONS OF COMPLEX HISTORICAL PERSONS AND EVENTS.

Similarly, historians have documented how the medical profession justified the need for licensing laws and the creation of state medical boards as serving the interests of the public.[16] Yet for most of its history, medical regulation was structured, and functioned, with an emphasis on the interests and priorities of the medical profession rather than the public it proclaimed to serve. Indeed, as the scholar Carl Ameringer made clear in his analysis of medical boards' disciplinary function, the clear orientation of these boards toward that of "public watchdog" did not fully mature until the last two decades of the 20th century.[17]

As one example of this impact on the regulatory framework, consider an early policy position adopted by FSMB in its first decade calling for a single medical licensing board in each state. The wave of post-Civil War legislation establishing medical boards and limiting the practice of medicine to physicians coincided with a period of deep sectarian splits within the profession, arising in part from the lack of proven therapeutic efficacy of most any treatment regimen of that era.[18] Graduates of proprietary homeopathic, eclectic, and physio-medical colleges secured legal recognition in most states during the late 19th century that included their own licensing board or representation on a single "regular" board.[19] FSMB, however, opposed creation of separate boards and advocated strongly for a single medical licensing board in each state[20]—a sensible position from a regulatory perspective but one that also aligned with the AMA's long-standing antipathy to this subset of physicians and their schools[21] as well as the Carnegie Foundation's desire to remove "commercial" (ie, proprietary) medical colleges from the landscape.[22]

Another example of prevailing professional interests includes the many decades in which medical boards were composed exclusively of physicians; and that the first public members did not appear on these boards until 1961 when California added public members. Even then, their presence remained minimal for many years thereafter.[23] FSMB's clearest statement on the composition of state boards derives from its 1956 policy document outlining the *Essentials of a Modern Medical Practice Act.* Adopted collectively by this nation's state medical boards at the FSMB's annual business meeting and updated through multiple editions over the next 40 years, the *Essentials* called for a traditional orientation of state medical boards stating that "physicians should bear the responsibility of licensing and regulating the profession...."[24] The *Essentials* did not call explicitly for public member representation on state medical boards until 1997.

THE TIMING OF FSMB's FOUNDING COINCIDED WITH A CRITICAL PERIOD IN AMERICAN MEDICINE: THE EARLY 20TH CENTURY ERA OF MAJOR REFORMS IN MEDICAL EDUCATION AND SOLIDIFICATION OF THE PROFESSION'S CONTROL OVER THE PRACTICE OF MEDICINE THROUGH STATUTORY MEASURES.

This example of the *Essentials* document and public membership on medical boards reflects a fundamental tension often contained within any national membership association grappling with high-profile or controversial issues. How does a national body encourage change or progress without getting too far ahead of its membership? In this instance, FSMB leadership acted with extreme caution, hesitating to update its policy until 87% of their membership already had non-physician members serving on their boards before presenting a modified *Essentials* in 1997.[25] Leading from behind carried its own risk, as evidenced in 1980 when one of the nation's largest medical boards briefly withdrew from FSMB membership in response to the lack of "progress or changes" in policy regarding public membership on medical boards.[26]

Similarly, one can point to the secondary role that medical boards long gave to their disciplinary function as further evidence of priorities aligned more closely to the interests and protection of the profession than the public. Indeed, boards exercising their disciplinary role often focused their efforts on non-physician practitioners (ie, midwives, chiropractors, Christian Scientists).[27] Both of these examples reflect instances where FSMB had the opportunity to champion a more explicitly public-oriented view for medical regulation. Organizational passivity on these issues can also be explained, at least in part, by FSMB's financial reliance upon organized medicine (ie, the AMA) throughout the first 70 years of its existence.

As a modestly funded entity, FSMB lacked the financial means to operate as a strong national organization. It even lacked the resources to host an independent annual business meeting on its own. Instead, the organization relied upon dedicated time and space on the AMA Annual Meeting Program to convene representatives from the medical regulatory community. Indeed, FSMB did not hold its first annual meeting apart from the AMA until 1982. Similarly, the AMA underwrote the publishing costs for the *Federation Bulletin* until the 1970s, including the provision of editorial assistance. The FSMB's first national offices (established in 1962) and its creation of a national board action data bank derived in large part from AMA largesse in providing the organization with a multi-year grant of $10,000 annually.[28]

This financial reliance upon an organization dedicated to the interests of the medical profession, as opposed to a presumably public-oriented medical regulation, undoubtedly influenced decision-making and priorities at FSMB—whether consciously or not; thus, making more explicable FSMB reticence in advocating for progressive change in the areas where the public interest differed from that of the profession (eg, medical board composition), increased focus on physician discipline.

The interests and biases of the medical profession—particularly the outsized influence of the AMA over decades—flowed into and directly influenced FSMB and medical regulation deep into the 20th century. The result? Blurred, and sometimes skewed, regulatory priorities and practices. For much of its history, FSMB balanced these competing regulatory and professional interests. While such interests were not always mutually exclusive, too often FSMB missed the opportunity to advocate unequivocally for a medical regulatory system with clear commitment to the roles, responsibilities and interests of the *regulatory* community and the diverse public it serves, as opposed to those of the medical profession.

Black Physicians

Medical education—and particularly the experience of Black physicians—presents another example of the challenging relationship between FSMB and the profession. It is commonly understood that systemic racism and bias have been operative in the US since well before its founding. Medical education proved no exception with gender and religious bias flourishing, especially prior to the last half of the 20th century. Limitations on Jewish matriculants has been well-documented; as late as 1940, roughly a half dozen schools did not admit women.[29] Implications for diversity in medical school leadership extend to this day.[30] Even more pronounced was the impact of racial and ethnic bias.

Black Americans confronted an even more daunting landscape. The legal, economic, and socio-political realities of early 20th century America reflected a continuation of the deeply flawed post-Reconstruction landscape—one that featured widespread racial exclusion founded upon a bedrock of White supremacy. Its accompanying beliefs—whether adopted explicitly or absorbed unconsciously—filtered into all aspects of American society. The failed national effort to secure adequate educational and legal support for meaningful integration of Black Americans extended the duration of an emasculated form of American democracy, one rife with hypocrisy and strewn with barriers and pitfalls.[31]

Specific to medicine, Black Americans faced severe limitations in their opportunities for medical education and, ultimately, medical licensure. Opportunities at medical schools other than Black medical colleges were little more than grudgingly made "token" gestures. This kept the number of Black medical students artificially low.[32]

HOW DOES A NATIONAL BODY ENCOURAGE CHANGE OR PROGRESS WITHOUT GETTING TOO FAR AHEAD OF ITS MEMBERSHIP?

Even measures intended to objectively assess readiness for, and predict success in, navigating the medical school curriculum faltered. FA Moss' aptitude test for medical school admissions failed to secure a long-term foothold largely because too many of the "wrong" type of candidates were successful (ie, women and non-White males).[33]

Opportunities were curtailed further by the educational reform measures mentioned earlier. Motivated by the wide variability in quality of this country's medical schools, the Carnegie Foundation and the AMA Council on Medical Education launched major educational reform efforts during the first decade of the 20th century that were intended to raise the educational standard for physicians. The Carnegie Foundation's Flexner Report remains the best known of these efforts, though the Council's inspection and rating system for US medical schools proved deeply impactful to medical regulation as well.

The Council created a 3-tier rating system that categorized all schools as Class A, Class B, or Class C. The first two categories either met standards or were deemed capable of doing so with reasonable changes. Class C schools were classified as substandard and deemed unsalvageable. This categorization system carried a profoundly negative impact on historically Black medical colleges (HBMCs), nearly all of which fell into the Class C category. By 1923, the number of HBMCs in this country dropped from eight in 1908 to just 2, Howard and Meharry.

Except for Howard, HBMCs were proprietary endeavors chronically short on funding and resources. Yet they were often the only option available to Black physician hopefuls. As state legislatures and medical boards adopted the Council's rating system as the basis for licensure, HBMCs categorized as Class C found their graduates ineligible for licensure in all but a few states by 1923—this reality accelerated the death spiral for nearly all HBMCs.[34]

Beyond this challenge, Black physicians faced another potential hurdle—the medical licensing exam. At that time, every state and territorial medical board wrote, administered, and scored its own exam. The construct of these exams (typically extended response questions) meant that scoring felt at best opaque, if not overly subjective, to all candidates. Black physicians, particularly in deeply segregated states, were understandably suspicious of these exams.[35]

FSMB had no role in creating the AMA Council's classification system; it appears that the organization took no formal action endorsing it. However, silence on the subject meant tacit support for a classification system gaining widespread momentum through state legislatures and medical boards. Just as FSMB silence sustained a regulatory framework that, in hindsight, we recognize prioritized professional, rather than public, interests, so too, the organization's silence during this era of educational reform acquiesced to measures that did considerable harm to HBMCs and prospective Black physicians.

International Medical Graduates

America's licensed physician population reflects significant diversity specific to their educational and training experiences. The *FSMB Census of Licensed Physicians in the United States, 2022* reports that 22.9% of this country's physicians are IMGs; over one-half received their medical degree in India, Pakistan, Mexico, Philippines, or the Caribbean region. Another 10.5% are osteopathic physicians.[36] These 2 physician groups are important cohorts within the licensed physician workforce. Unfortunately, FSMB's history with both groups includes instances of bias and discrimination. FSMB not only failed to value these groups and their contributions in the past, but at times the organization targeted them with unwarranted criticism.

The best evidence for this comes from the organization's official publication in the 1920s, the *Federation Bulletin* The changing tenor of those times—with heightened post-World War I anxieties around the prospects for communist expansion—created a reactionary wave in American politics and culture. Nativist and racist sentiment surged beginning in 1919. The FSMB reflected this trend in its expressed views on international medical graduates.

Inflammatory language such as "alien invasion" and "undesirable foreign applicant" soon entered the editorial pages of the *Bulletin* during this period.[37] This discriminatory language differed little in tone from the country's political jeremiads culminating in the racially based National Origins Act of 1924 that limited or prohibited immigrant groups. The *Bulletin's* language marked a linguistic excess and hyperbole disproportionate to the small number of IMGs seeking to practice medicine in the US at the time.[38]

FSMB inaction further compounded the difficult environment confronting IMGs. In the mid-1920s, individual states targeted IMGs directly with a mix of legislation and licensing requirements mandating full citizenship as a condition for medical licensure or, in some instances, that the individual begin the formal citizenship process by filing naturalization papers. Twenty-one states had such requirements in place by 1926 with the number rising to 47 states by 1958.[39]

Justification for such a requirement stemmed from a variety of motives. One typically heard during this period involved concerns for the comparability of the medical education presented by IMGs to licensing boards. In many, if not most, instances this was true—information and data supporting comparable medical education to inform a licensing decision was missing. Yet the argument seems, in retrospect, to have been wielded selectively as the US had no formal accrediting body establishing national standards for its own medical schools until 1942.[40] Still, this argument allowed some state boards to close their licensing examination to IMGs and even decline to license

AMERICA'S LICENSED PHYSICIAN POPULATION REFLECTS SIGNIFICANT DIVERSITY SPECIFIC TO THEIR EDUCATIONAL AND TRAINING EXPERIENCES.

them under pre-existing reciprocal arrangements with other states.[41]

By the 1930s, justification for such restrictions gained an added economic incentive as the country lapsed into the Great Depression. Walter Bierring, as FSMB Secretary-Treasurer (1915-1960) and AMA President (1933-34), warned against a physician "oversupply" threatening the financial stability of the physician workforce and championed the cause of citizenship requirements for IMGs.[42] His support for such measures culminated in 1938 with his unequivocal support for "full citizenship" as a requirement for IMG licensure in the United States.

Bierring later softened his hard line on mandating full citizenship in 1940, acknowledging then that he saw the IMG issue in a "different light," while urging the profession and medical regulators to adopt a "more charitable interpretation of the citizenship clause" (eg, require only that naturalization papers be filed).[43] Precisely why Bierring tempered his position remains unclear. However, the timing of this change seems telling and largely explainable through the refugee dislocations further accelerating in Europe by the end of 1940. Émigré and refugee physicians migrating to America found a newly sympathetic reception within some medical boards and among their leadership (Colorado, New York, Vermont) in their attempt to reestablish a medical career in America.[44] The *Federation Bulletin* reflected this changing tone with its publication of the full 1941 report by the National Committee for Resettlement of Foreign Physicians—a report that explicitly called for licensing boards to moderate their stance on IMGs.[45]

Policy recommendations offer another means to consider FSMB's relationship with IMGs. Since its earliest years, FSMB has contributed model policy to state medical boards for consideration and adoption. A central policy document remains the *Essentials of a Modern Medical Practice Act*.[46] First drafted in 1956, the *Essentials* long recommended graduate medical education (GME) as a requirement for a full, unrestricted license. Through most of the multiple editions of the *Essentials*, this recommendation distinguished between US graduates and IMGs with a higher bar set for the latter specific to GME requirements—a difference long questioned by many IMGs. Only the most recent edition of this policy document removed this disparity, calling now for *all* licensure candidates (both US and IMGs) to present 3 years of progressive training in an accredited GME program.

Osteopathic Physicians

Even harsher statements concerning osteopathic physicians can be found in the *Federation Bulletin* during this same period. The rise of osteopathic medicine in the first decades of the 20th century presents a story of professional perseverance despite significant opposition and outright hostility from organized medicine and the allopathic (MD) medical community; the FSMB proved no exception. The invective directed against osteopathic physicians in the *Bulletin* is noteworthy for its extremity, frequency, and persistence over a prolonged period.

One aspect of this early 20th century antipathy on the part of the medical profession can be traced to the divergent aspirations of osteopathy's founder, Dr. AT Still, and those of his early 20th century followers. Dr. Still explicitly avoided terms such as

THE *FSMB CENSUS OF LICENSED PHYSICIANS IN THE UNITED STATES, 2022* REPORTS THAT 22.9% OF THIS COUNTRY'S PHYSICIANS ARE IMGs.

doctor and *medicine*, championing an educational curriculum with manipulative treatment as the defining characteristic of osteopathy and enthusiastically disavowed the need for graduates of his American School of Osteopathy to prescribe drugs and perform surgery. Once in practice, however, many of his graduates chafed at the limitations inherent to this purist vision and soon began pushing their state legislators for statutory changes recognizing osteopathy as a healing art with legal rights comparable to MDs. The resulting pushback from the medical profession came swiftly and not entirely without justification.[47] The preeminent historian of osteopathic medicine, Norman Gevitz, has written extensively on the less robust elements characterizing the osteopathic curriculum through the first half of the 20th century and the impact of "lower standards" upon professional acceptance.[48]

As early as 1915, the *Federation Bulletin* labeled osteopathic medicine a "giant fraud" and denigrated its practitioners as a "pseudomedical cult."[49] The *Bulletin's* editors and contributors questioned explicitly whether osteopaths even deserved the title of physician and lamented the "perverting" of medical licensure through legislative efforts to create separate licensing boards for them.[50] The

Bulletin further decried osteopathic medicine's "fallacious claims," characterized its treatment regimen as bordering on "criminal,"[51] denigrated its practitioners as "rubbers"[52] and argued that "no conciliatory tone" should be adopted in interacting with osteopathic physicians.[53] This author's review of FSMB publications spanning more than a century confirms that few groups or topics received such extreme coverage within the pages of the *Bulletin* or its successors (ie, *Journal of Medical Licensing and Discipline, Journal of Medical Regulation*).

The lingering effects of this bias undoubtedly factored into the long delay in FSMB recognizing and admitting osteopathic licensing boards to its membership. Formal admission of osteopathic licensing boards did not occur until 1971.[54] FSMB leadership appeared surprised by the reaction of its membership when an initial proposal to admit osteopathic boards garnered wary questioning rather than sailing through unopposed at the organization's 1970 annual meeting. The FSMB's House of Delegates voted to refer the issue to an *ad hoc* committee for study and report back the following year. The subsequent committee report urged extending membership to DO boards. While FSMB leadership felt "petty prejudices" were expressed in debating the issue, opposition to DO board membership centered less upon historical tensions and more on practical concerns—specifically, that such a move would hinder the steady momentum toward a single composite (MD and DO) board in each state and signal equivalency between the Federation Licensing Exam (FLEX) and that of the National Board of Osteopathic Medical Examiners (NBOME). Ultimately, FSMB's House of Delegates "overwhelming[ly] accept[ed]" the committee's recommendation.[55]

Visible progress integrating osteopathic physicians into FSMB leadership came slowly. A full 2 decades passed before the FSMB House of Delegates elected an osteopathic physician as Chair. Since then, 3 other osteopathic physicians have served in this role.[56]

Diversity in FSMB Governance

Membership on the FSMB Board of Directors is determined through election by the organization's membership—made up of the individual state medical boards. Each year, representatives from these boards convene at the FSMB's House of Delegates meeting. In recent years, this process has produced the greatest diversity on the FSMB Board than at any point in the organization's history (10 of the 16 current (2023-2024) Board members are women or persons of color).[57] While this presents an admirable current state of affairs, a review of FSMB governance over the organization's history reminds us of a different reality, one not as far removed in time as we might think.

During its first 70 years, the FSMB saw no women or persons of color serving on its governing board. This board profile did not change markedly until the mid-1980s. A review of membership rosters for the FSMB Board covering the period 1980-1999 shows that women constituted only 11% of the Board's membership. This figure rose to 33% for the period 2000-2022 (Table 1). A similar, but more muted trend, can be seen with racial/ethnic diversity. Groups other than White, non-Hispanic members comprised only 10% of the board from 1980-1999; this figure rose to 22% for the period 2000-2022.[58]

Table 1
Composition of the FSMB Board of Directors

Time period	Gender	Number	Percent
1980–1999	Male	50	89%
	Female	6	11%
2000–2022	Male	62	67%
	Female	30	33%

While there have been distinct advances toward a more diverse governance structure in recent decades, the overall historical record spanning more than a century of FSMB governance is characterized by underrepresentation of women and persons of color. This is attributable to two factors—one specific to serving on a state medical board and the other specific to serving on the FSMB Board.

The pool of potential candidates eligible to serve on FSMB governance is outside the control of the organization and, in most instances, outside the control of the state medical board itself. State medical board membership is generally constituted by gubernatorial appointment—and for many years, an appointment often made with input and/or formal recommendations from the state medical society or association. The historical reality of this power dynamic is that few women or persons of color gained appointment to medical boards for many decades. It is not happenstance that most states only saw individuals from either group first

gain appointment to their medical board in the 1970s and 1980s.[59]

Furthermore, diversifying FSMB governance requires success in the FSMB elective process through its House of Delegates—elections in which seats on the board are contested among multiple candidates for an open position. Appointment to a medical board presented merely the first step, with the uncertainties of an elective process still to be navigated, before gaining a seat on the FSMB Board. Ultimately, neither the FSMB Board nor individual state medical boards exercise direct control over their composition.

These external factors loom large in any discussion of FSMB Board composition. Yet, they cannot excuse entirely the passivity in seeking a more diverse and representative body. The reminiscences of the first woman elected to serve as Chair of the FSMB Board—Dr. Susan Behrens—offers insight into an organizational culture akin to an "old boys' club" in which informal tacit agreements among Board members heavily influenced the line of progression into FSMB elected officers. In Behrens' case, a "misread[ing]" of her resume led to a technical question about her eligibility to make the routine, traditional shift from the Vice President into the office of President-elect of the Board. Rather than reaching out to Dr. Behrens to clarify a question impacting her eligibility to serve as President-elect, the FSMB's Nominating Committee left her name off the recommended slate of candidates; thus, forcing Dr. Behrens to run a challenging but ultimately successful write-in campaign for the office.[60] This departure from what had been standard protocol is suggestive of the less visible barriers often facing candidates whose presence would diversify governance.

The historical record for FSMB in this area is one that might best be characterized by silence and missed opportunity. Throughout most of the 20th century, it appears that the FSMB failed to actively seek or promote diversity in its governance; nor did it encourage its member state medical boards to seek similar diversity on behalf of physicians and patients in their states. In this regard, passivity represents a missed opportunity, especially during the changing American zeitgeist in the 1960s and 1970s that would have given legitimacy to such advocacy.

Final observations and recommendations

The retrospective lens of history provides a clarity denied to us in the present; yet we should not let this clarity deceive us. Our insights into the past are not because we possess greater wisdom, understanding or intuitiveness than those who preceded us. They are merely the natural outcome of our fortuitous location at a specific moment in time.

It should also be stated that not all of what has been presented here is new. The history of the FSMB published for its Centennial in 2012 touched upon many of these same subjects. Indeed, by situating the FSMB's history within the broader scope of developments within medicine, medical education, and the medical profession, problematic features within the history of FSMB were contextualized within an appropriate historical framework. The intervening decade since that original research and the renewed focus on the impact of systemic bias offered this opportunity to revisit the FSMB's past with an eye toward presenting a sharper, more nuanced portrait of certain aspects of the organization's history and evolution.

MEMBERSHIP ON THE FSMB BOARD OF DIRECTORS IS DETERMINED THROUGH ELECTION BY THE ORGANIZATION'S MEMBERSHIP—MADE UP OF THE INDIVIDUAL STATE MEDICAL BOARDS.

Retrospective review can accomplish only so much, however, if it is not accompanied by meaningful future-oriented actions. FSMB has undertaken laudable steps with the former; yet there appears to be still more that can be done regarding the latter. For instance, FSMB might treat its decision to end its practice of naming awards and events after individuals as a temporary suspension rather than a permanent discontinuation. This would allow time for a meaningful (re)consideration of individuals—both current as well as those within the near and distant past—demonstrating the values and characteristics FSMB wishes to exemplify; and potentially to bestow honors upon individuals who in earlier periods did not necessarily garner the consideration and recognition that their contributions warranted.

Another tangible action by the FSMB Board includes codifying their commitment to diverse perspectives within its educational programming highlighted by the organization's annual meeting. In 2023, the Board added to its policy compendium a commitment to a "broad range of perspectives" in its programming and an explicit pledge to "invite

faculty members and panelists from underrepresented communities for educational programs it sponsors…and follow best practices to assure diversity among speakers and attendees."[61]

FSMB might also consider a formal review of all processes for selection to its Board. Such a review might serve to refine rather than fundamentally alter these processes, as the diversity seen on the FSMB board in recent decades suggests that internal mechanisms designed to promote diversity and

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a broad array of perspectives are working reasonably effectively. For instance, the written charge to the FSMB's Nominating Committee that reviews and puts forth candidates for Board positions is explicit in directing the committee to "assertively recruit individuals…who represent diversified backgrounds, experiences and cultures." Similarly, the FSMB policy on *Structure and Function of a State Medical Board* calls expressly for diverse representation on every state medical board. It further states that "sex, race, national or ethnic origin, creed, religion, disability, gender identity, sexual orientation, marital status, or age above majority should not preclude an individual from serving on the board."[62]

FSMB reiterated this message through the recommendations of its recent Workgroup on Diversity, Equity, and Inclusion in Medical Regulation. That workgroup encouraged "state medical boards…to increase the diversity of their board members and staff to mirror the population they serve through: (1) outreach to underrepresented communities and (2) statutory language that sets minimum standards for diversity through the appointments process."[63]

There is one additional policy that FSMB may wish to consider reviewing: the organization's long-standing recommendation that members of medical boards be appointed by the Governor or Legislature. While it would be impractical, and arguably inappropriate, to suggest divesting either of these entities wholly from this appointive role for a governmental agency such as a state medical board, there are growing indications of overt politicization of the appointment process. Recent investigative reports documenting medical board members as donors to gubernatorial campaigns[64] suggests that FSMB could revisit its policy recommendation with an eye toward tempering the most overt link between political campaign contributions and service on a state medical board.

Finally, the intent behind this article remains as stated earlier: to improve transparency about the FSMB's past actions, policies, statements, and silences, and to acknowledge outcomes that we recognize now as hurtful and highly consequential to individuals and groups that largely lacked sufficient access to power and influence to safeguard their own self-interest. FSMB's formal acknowledgement in 2021 of its role in systemic bias in the medical profession and regulatory landscapes marked an important step forward; yet, acknowledgement alone cannot suffice. FSMB's responsibility going forward is to make good on its commitment to addressing and mitigating bias through policies and activities consistent with promoting equity and integrity in a regulatory system dedicated to patient interests.

References

1. An excellent though somewhat dated starting point into the scholarly literature can be found in Byrd MW, Clayton LA. Race, medicine, and health care in the United States: A historical survey. *J Natl Med Assoc.* 2001;93(3):11S-34S.
2. See Baker R, Washington H, Savitt T, et al. Creating a segregated medical profession: African American physicians and organized medicine, 1846-1910. *J Natl Med Assoc.* 2009;101(6): 501-512. doi: 10.1016/s0027-9684(15)30935-4
3. On Sims, see Deirdre Cooper Owens DC. *Medical Bondage: Race, Gender and the Origins of American Gynecology.* Athens, Ga: University of Georgia Press; 2017 and Washington H. *Medical Apartheid: The Dark History of Medical Experimentation on Black Americans.* New York: Doubleday Books; 2006. See also McGregor DK, *From Medicine to Midwives: The Birth of American Gynecology* (Camden, NJ: Rutgers University Press; 1998; Zhang S. *The Surgeon Who Experimented on Slaves.* The Atlantic. April 8, 2018. Leah Wall offers a much different interpretation of Sims' actions in The medical ethics of Dr. J. Marion Sims: A fresh look at the historical narrative. *J Med Ethics.* 2006;32(6):346-350.
4. Howell J, Hirshbein L, Stern AM. Entanglements of eugenics, public health and academic medicine: Reckoning with the life and legacies of Victor C. Vaughan. *Bull Hist of Medi.* 2022;96(4):516. doi:10.1353/bhm.2022.0049
5. Biggs A. On making us whole again. *Bull Hist Med.* 2022; 96(4):481-482. doi: 10.1353/bhm.2022.0047

6. FSMB Statement on Diversity, Equity and Inclusion in Medical Regulation and Health Care. Federation of State Medical Boards Press Release April 15, 2021. Accessed February 1, 2024. https://www.fsmb.org/advocacy/news-releases/
7. Johnson DA, Chaudhry HJ. *Medical Licensing and Discipline in America: A History of the Federation of State Medical Boards.* Lanham, MD: Lexington Books; 2012.
8. Ludmerer K. *Learning to Heal: The Development of American Medical Education.* Baltimore: Johns Hopkins University Press; 1985, 112, 170-172.
9. *Medical Licensing and Discipline.* See chapter 2 on FSMB predecessor organizations.
10. Pritchett H. Preparations for the profession. *Quarterly of the Federation of State Medical Boards.* 1913; 1(1):4.
11. Carroll KL. *Building Schools, Making Doctors: Architecture and the Modern American Physician.* Pittsburgh, PA: Univ of Pittsburgh Press; 2022. 4, 255.
12. See Markowitz GE, Rosner DK. Doctors in crisis: A study of the use of medical education reform in establish modern professional elitism in medicine. *American Quarterly.* 1973;25(1): 83-107.
13. Intertwining of educational and private institutional initiatives (eg Carnegie, Rockefeller) saw the former increasingly accountable to the latter. See Lagemann E. *Private Power for the Public Good: A History of the Carnegie Foundation for the Advancement of Teaching*. Middletown, CT: Wesleyan Univ Press; 1982, 39.
14. Flexner A. *Medical Education in the United States and Canada: A Report to the Carnegie Foundation for the Advancement of Teaching. Bulletin 44.* New York: Carnegie Foundation; 1910, 167.
15. Cabot H. The relation of the Federation of State Medical Boards to Medical Schools. *Federation Bulletin.* 1929;15(3): 77.
16. See Mohr J. *Licensed to Practice: The Supreme Court defines the American Medical Profession.* Baltimore, MD: Johns Hopkins University Press; 2013 and Starr P. *The Social Transformation of American Medicine.* New York: Basic Books;1982.
17. See Ameringer C. *State Medical Boards and the Politics of Public Protection.* Baltimore, MD: Johns Hopkins University Press; 1999, 1.
18. See introduction in Licensing to Practice. See also Pellegrino E. *The Sociocultural Impact of Twentieth Century Therapeutics.* Eds. Vogel M, Rosenberg C. *The Therapeutic Revolution.* Philadelphia, PA: Univ. of Pennsylvania Press; 1979, 245-66. See also *Therapeutic Revolutions: Pharmaceuticals and Social Change in the Twentieth Century,* Eds. Greene JA, Condrau F, Watkins ES. Chicago: University of Chicago Press; 2016.
19. See Table 2 in Baker SL. Physician licensure laws in the United States, 1865-1915. *J Hist Med Allied Sci.* 1984;39(4):173-197.
20. See Report of President Strickler. *Federation Bulletin.* 1921;7(3):58 and Coordination of effort in medical licensure. *Federation Bulletin.* 1920;6(3):56.
21. See 1855 and 1878 actions of the AMA directed against homeopathic physicians in Morris Fishbein, *A History of the American Medical Association,* 1847 to 1947 (Philadelphia: W. B. Saunders Co., 1947), 62, 96.
22. Lagemann E, *Private Power for Public Good: A History of the Carnegie Foundation for the Advancement of Teaching.* Middletown, CT: Wesleyan University Press; 1983. 39.
23. A 1974 federal report identified only four state boards with designated public members. See Health Manpower, 1974: Hearings before the Subcommittee on Health of the Committee on Labor and Public Welfare, US Senate, 93rd Congress, second session on S. 3585. June 24, 1974. Washington DC: US Government Printing Office; 1975, 2635-41.
24. *Essentials of a Modern Medical Practice Act,* 8th Edition. Euless, TX: Federation of State Medical Boards;1997,4.
25. FSMB Handbook, 1997-1998. Euless, TX: FSMB; 1997 shows only 9 of its 68 boards with membership comprised solely of physicians.
26. FSMB Board of Directors Agenda Materials. Tab 13. October 11, 1980. FSMB Archives. Euless, Texas.
27. *Medical Licensing and Discipline.* Chapter 6.
28. Again, Thanks to the AMA. *Federation Bulletin.* 1962;49(9):234; see also "Minutes of the Annual Meeting," *Federation Bulletin.*1961;48(5):145 and 1963;50(7): 186-187.
29. See Halperin E. The Jewish problem in US medical education, 1920-1955. *J Hist Med Allied Sci.* 2001;56(2):140-167. See also, *Women in Medicine. The Diplomate.* 1940;12(2):71. See also Walsh MR. *Doctors Wanted: No Women Need Apply Sexual Barriers in the Medical Profession,* 1835-1975. New Haven: Yale University Press; 1977.
30. Anderson N, Nguyen M, Marcote K, et al. The long shadow: A historical perspective on racism in medical education. *Acad Med.* 2023;98(85):S28. doi: 10.1097/ACM.0000000000005253
31. W.E.B. DuBois termed this "abolition democracy," a political condition within which the elimination of slavery was not fully actualized because of the lack of concomitant support systems to fully liberate black Americans. DuBois WEB, *Black Reconstruction.* New York: Harcourt, Brace and Co.; 1935, 184-185.
32. Borst C. Choosing the student body: Masculinity, culture, and the crisis of medical school admissions, 1920-1950. *Hist Educ Q.* 2002;42(2): 187-189.
33. Ibid, 204, 210.
34. State Board Statistics for 1923., *JAMA.* 82, No. 17, April 26, 1924, 1351.
35. Johnson DA. *The North Carolina Medical Licensing Examination, 1886-1925: Analysis of Performance by from Historically Black Medical Colleges.* North Carolina Historical Review. 2021;98(2):178-180.
36. Young A, Pei X, Arnhart K, Carter JD, Chaudhry HJ. FSMB census of licensed physicians in the United States, 2022. *J Med Regul.* 2023;109(2):15. doi.org/10.30770/2572-1852-109.2.13
37. Citizenship as a requirement for licensure. Federation Bulletin. 1923;9(9):218; Foreign medical graduates. *Federation Bulletin.* 1926;12(3):74.
38. IMGs represented only 3.3% of all candidates examined by state medical boards between 1920-25. See State Board Statistics JAMA for candidates examined in prior year. Issues May 15, 1926; May 2, 1925; April 26, 1924; April 28, 1923; April 29, 1922; April 30, 1921.
39. Medical licensure statistics for 1958. *JAMA.* 1959;170(5):150

40. Bowles MD, Dawson VP. *With one voice: The Association of American Medical Colleges,* 1876-2002. Washington, DC: AAMC; 2003, 57.

41. Wisconsin excludes foreign graduates. *The Diplomate.* 1939;11(1):36

42. Bierring WL, Social dangers of an oversupply of physicians. *American Medical Association Bulletin.* 1934;29(2):17-18.

43. *Medical Licensing and Discipline in America,* 117-118.

44. Kohler E. *Relicensing Central European Refugee Physicians in the United States, 1933-1945.* Simon Wiesenthal Center Annual 6; 1989. Accessed February 1, 2024. https://www.museumoftolerance.com/education/archives-and-reference-library/online-resources/simon-wiesenthal-center-annual-volume-6/

45. Edsall D, Putnam T. The émigré physician in America, 1941: A report of the national committee for resettlement of foreign physicians. *Federation Bulletin.* 1942;28(1):7.

46. Now titled as *Guidelines for the Structure and Function of a State Medical and Osteopathic Board.* May 2021 edition, accessed February 1, 2024. https://www.fsmb.org/advocacy/policies/

47. See Gevitz N. The diplomate in osteopathy: From school of bones to school of medicine. *J Am Osteopath Assoc.* 2014;114(2):114, 123. doi: 10.7556/jaoa.2014.025 and The doctor of osteopathy: Expanding the scope of practice. *J Am Osteopath Assoc.* 2014;114(3):210. doi: 10.7556/jaoa.2014.038

48. See Gevitz N. The diplomate in osteopathy': From school of bones to school of medicine. *J Am Osteopath Assoc.* 2014;114(2):114,123. doi: 10.7556/jaoa.2014.025 and The doctor of osteopathy: Expanding the scope of practice. *J Am Osteopath Assoc.* 2014.;114(3):210. doi: 10.7556/jaoa.2014.038). See also Chapter 6 of *The DOs: Osteopathic Medicine in America,* 2nd edition (Baltimore: Johns Hopkins University Press, 2004)

49. Modern pseudomedical cults, *Federation Bulletin.* August 1915, 56.

50. Shall osteopaths be recognized as physicians? *Federation Bulletin*. March 1916, 175.

51. Osteopathy. *Federation Bulletin.* October 1917, 185.

52. Rixford E. Concerning osteopathy. *Federation Bulletin.* 1921;12(10):235.

53. Scientific medicine vs. quackery. *Federation Bulletin.* 1919;5(5):99.

54. Federation membership offered to independent boards of osteopathic examiners. *Federation Bulletin.* 1971;58(9):348.

55. Ibid, 355; See also Federation Archives. Proceedings of Annual Meeting of the Federation of State Medical Boards of the United States. Annual Business Meeting for February 8, 1970, 5-18.

56. Anthony Cortese, DO (Oregon) in 1988. See Leadership and Past Chairs under "About FSMB" at www.fsmb.org. The first IMG elected as FSMB Chair came 5 years later with Dr. Hormoz Rasekh.

57. See FSMB leadership at https://www.fsmb.org/about-fsmb/fsmb-leadership/

58. Johnson DA, Anderson A. How diverse are state medical boards? *J Med Regul*. 2021;107(4):33-36. doi: 10.30770/2572-1852-107.4.33

59. Representative examples. In 1979, Dr. Ruth Bain became first woman to serve on the Texas medical board; in 1974, Dr. Roland Gandy became first African-American to serve on the Ohio medical board; in 1989, Dr. John Thomas Daniel became first African-American president of the North Carolina Medical Board.

60. Behrens S. Recollections of the First Woman to Serve as President of the FSMB. Journal of Medical Regulation. 2012;98(2):22-26. Note: At that time, FSMB used the title "President" for the elected leader of their board. About 20 years later the organization changed to the current title, "Chair."

61. Diversity of Representation for Educational Programming. FSMB Board of Directors Policy Compendium. Euless, TX: FSMB, 2023, 40.

62. Guidelines for the Structure and Function of a State Medical and Osteopathic Board. Euless, TX: FSMB, May 2021, 15.

63. Report of the FSMB Workgroup on Diversity, Equity and Inclusion in Medical Regulation and Patient Care. Euless, TX: FSMB, April 2022, 15.

64. Grant M. Money, Politics and Patient Safety: Abbott Donors on Texas Medical Board. February 1, 2024. Accessed at https://www.kxan.com/investigations/money-politics-and-patient-safety-abbott-donors-on-texas-medical-board/; and Sexton CJ. Medical Board Members Have Gov. DeSantis' Back Financially and on Gender-Affirming Care. February 1, 2024. Accessed at https://floridapolitics.com/archives/567191-medical-board-members-have-gov-desantis-back-financially-and-on-gender-affirming-care/

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