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How to Recruit and Train Diverse Pediatric Orthopaedic Surgeons

Amelia M. Lindgren, MD and Suken A. Shah, MD, FAOA, FAAOS

Nemours Children's Health, Wilmington, DE

Correspondence: Suken A. Shah, MD, FAOA, FAAOS, Nemours Children's Health, 1600 Rockland Rd., Wilmington, DE, 19803. E-mail: Suken.shah@nemours.org

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Abstract

Despite recent efforts, orthopaedic surgery has lagged behind other specialties in diversity. The number of underrepresented minorities has changed little over the past 10 years and the number of women has increased at an extremely low rate. There are many factors that influence the choice of specialty, and a more concerted effort is needed to foster an inclusive environment and increase the diversity within orthopaedic surgery. Early exposure to musculoskeletal education, pipeline programs, abolishing stereotypes, strong longitudinal mentorship for underrepresented minorities and women, targeted recruitment, and holistic review can help create a more diverse field mirroring the diversity of the United States.

Key Concepts

- Orthopaedic surgery lags behind other specialties in healthcare.
- Patients are more likely to be engaged in their care and comply with medical therapy if they identify with their physician.
- Diversity brings a wider talent pool with different perspectives and creative solutions, which can drive economic and social productivity in the workplace, enhance innovation, improve performance, and lead to greater profitability.
- Through a more holistic review of applications and with a lens towards diversity, we can interview more diverse candidates and match positions with qualified candidates.

Diversity can take on many forms, varying from race, gender, sexual orientation, religious orientation, economic class, or even appearance. Diversity brings a wider talent pool with different perspectives and creative solutions. This inherently drives economic and social productivity, leading to innovation, improved performance, and profitability.

Within the field of medicine, a diverse and culturally competent workforce leads to better patient care. Minority groups are more likely to practice in underserved areas which improves overall access to care. Additionally, a more diverse and culturally competent workforce is an important step toward improving patient communication, addressing healthcare disparities, and quality of care.^{1,2}

Despite recent efforts, orthopaedic surgery lags behind other specialties in regard to racial, gender, and sexual orientation diversity. In the past 30 years, minority representation in medical school has improved significantly. The 2018 entering medical school class was 51.6% women and 35.7% minorities (African American, Asian, Hispanic, American Indian, Pacific Islander).³ In contrast, the diversity within orthopaedics has changed minimally. In 2021, the AAMC reported 50% of all MD residents were white and 36.2% were minorities. In orthopaedics, 74% of residents were white and 26.1% were minorities. Residents reporting a future in pediatric orthopaedics were 63% white and 29.6% minorities.⁴ The minority breakdowns are shown in Table 1. Minority representation in orthopaedics has actually decreased from 33.3% in 2006. Representation decreased by 32.5% from 2006 to 2015, averaging a decrease of 3.85% per year, despite increased representation at the medical

school and overall residency levels.² The number of U.S. orthopaedic residency programs without a single minority trainee increased from 40 in 2002 to 60 in 2016.⁵ In 2018, 84.7% of practicing orthopaedic surgeons were white, 6.7% Asian, 2.2% Hispanic, 1.9% African American, and 0.4% Native American.⁶

Similarly, the representation of women in orthopaedics remains significantly lower than the national average and other surgical specialties. In 2021, 46.3% of all medical residents were women, but only 17% of orthopaedic residents were women. However, 37% of those indicating a subspecialization in pediatric orthopaedics were women. The overall percentage of women in orthopaedics residency has improved from 11% in 2006; the rate of increase between 2006-2015 was substantially lower than all other surgical specialties, except for urology² and the overall percentage has remained much lower than any other surgical subspecialty residency. In 2020, general surgery became the most diverse surgical subspecialty residency and in 2021, boasted 44.8% women. Neurosurgery had the second lowest representation of women, with 20.5%.⁷ In 2018, only 7.6% of practicing orthopaedic surgeons were women.⁶

Additionally, orthopaedics ranks last among specialties for LGBTQ+ students entering residency. Mori et al. conducted a survey of all graduating medical students (2016-2019) and found that 6.3% of graduating medical students were LGBTQ+. Orthopaedic surgery had the lowest percentage of sexual minority identifying students at 1.8%.⁸ The percentage of adults who told Gallup they identify as LGBTQ has doubled since 2012, from 3.5% of Americans then, to 7.1% of Americans in 2021. Additionally, 10.5% of millennials and 21% of

Table 1. Percentages of Minorities Within Orthopaedic Surgery and Pediatric Orthopaedics¹

	Native American	Asian	African American	Hispanic	Pacific Islander
Surgery	0.6	21.8	5.8	7.8	0.2
Orthopaedic Surgery	0.6	13.6	5	6.7	0.2
Pediatric Orthopaedics	0	11.1	3.7	14.8	0

Gen Z adults identify as LGBTQ+.⁹ Without improved recruitment and diversity, orthopaedics will miss out on extremely talented individuals.

What can we do to change this and break the cycle? Recruiting and training a diverse workforce is challenging and takes dedication. A welcoming, open, and supportive environment can encourage people to join a specialty they may not otherwise feel they identify with. It is of utmost importance for the department to establish diversity as an overarching goal and then take all necessary steps to achieve this goal. We will outline several steps below. These include increased exposure to musculoskeletal topics at the medical school level as well as at earlier stages of education, investing in underrepresented minorities (URM) and female medical students interested in orthopaedics to help them overcome the barriers they face and provide strong mentorship, and to emphasize a wide spectrum of achievements and skills during residency/fellowship selection process and a change in the recruitment process.

Unfortunately, in orthopaedics, it is speculated that one of the main reasons for the lack of diversity is the current lack of diversity. There are few URM candidates at the outset, as they are underrepresented in medical school, and aspiring URM trainees are less likely to apply to orthopaedic surgery, less likely to be accepted into orthopaedic residency programs, and less likely to finish their training. One study found URM students who attended a medical school with high URM representation on the faculty were more likely to apply into orthopaedics than those who attended a medical school with low faculty URM representation (Odds Ratio 1.27). Similarly, URM students were more likely to apply into orthopaedics if there was high URM representation among the residents (Odds Ratio 1.45).¹⁰ Increasing URM representation among the faculty and residents is important for recruitment, but staff in the research department and administrative offices should also reflect the diversity of the community population. There is no evidence to suggest that the residency selection process

is a barrier to entry since the proportion of women and minority applicants is similar to the admitted class of residents. But, lack of exposure, negative perceptions about lifestyle and incompatibility with family life, lack of diversity and role models, and misconceptions about the physical demands of orthopaedics have all been speculated as reasons for a shortage of URM and women applicants.² The 2020 Medical School Graduation Questionnaire reported 81% of medical students rated that role model influence was a strong or moderate influence in their chosen specialty (52.1% and 28.9%, respectively). With regards to resources for specialty choice and career planning, 73.9% rated that advising/mentoring was either very or moderately useful, and 81.6% rated that specialty interest group-sponsored panels and presentations were useful.¹¹

Early Exposure to Orthopaedics

Early exposure to musculoskeletal education has been shown to increase interest in orthopaedic surgery among women and URM.² Premedical exposure or exposure early in medical school can spark an interest, facilitate mentorship, and influence career decision-making. If women and URM serve as instructors for early musculoskeletal education, they can serve as potential role models, mentors for future applicants, and foster a sense of belonging.

In one study, medical students who reported feeling a sense of belonging in orthopaedics described themselves as being in a cultural “in-group,” and students who did not feel a sense of belonging felt they were in a cultural “out-group” in orthopaedics. Their sense of belonging was derived from how closely they felt their identities aligned with the stereotypes about the field: that orthopaedic surgeons were white, male, and athletic. Ultimately, those in the “out-group” reported pursuing other fields due to decreased interest and engagement and a lack of a sense of belonging within orthopaedics.¹²

To combat this sense of being in the “out-group” and to foster an environment of inclusivity, multiple pipeline programs have been developed. Programs such as the

Perry Initiative and Nth Dimensions have shown that targeted outreach to high school, college, and first/second-year medical students encourages interest in orthopaedics and improves chances of matching into an orthopaedic residency.² Similarly, the New Century Scholars program is a mentorship program for URM pediatric residents interested in academic careers who are provided with junior and senior mentors for ongoing mentorship, travel grants to the annual Pediatric Academic Societies meeting, and career counseling, which lead to increased rates of residency completion and greater pursuit of academic careers. Additionally, close friendships and extensive networks with other participants and mentors are enabled.¹³ Programs with consistent, longitudinal mentorship ensure that students are well informed, prepared for applications, better equipped for handling challenges, and set up for success.

Recruitment

It is important to understand stereotypes and biases at every level of the recruitment process from department websites to job descriptions to the actual interview process. Even the pictures chosen for the department or program website can have implicit bias if they demonstrate a homogenous group with no apparent diversity (for example, only white males). Photos with diverse trainees or faculty help all applicants feel more welcome. The words used in a job description are also incredibly important and can be instrumental in obtaining diverse applications. For example, job postings can include statements such as: “provide culturally relevant care, reducing health disparities, helping build a diverse and inclusive team environment . . .” and “candidates with diverse backgrounds, Spanish-speaking, and those committed to working with diverse populations and conversant in multicultural issues are strongly encouraged to apply.” Phrases like these showcase the values that are important to the institution and the vision the department aims to achieve.

Holistic Review

Holistic review is a flexible, individualized way of assessing an applicant’s capabilities by which balanced

consideration is given to experiences, attributes, and academic metrics. When considered in combination, the holistic review process demonstrates how the individual might contribute value to the institutional mission.¹⁴ A holistic approach is mission-driven; strategically focused; promotes diversity essential to institutional excellence; applies multiple factors beyond academic achievements and test scores to screen, interview, and select residents/fellows; and is informed by data. Strict adherence to test scores may lead to disproportionately low recruitment of URM and women. Although high test scores may predict future high board scores, it does not necessarily predict clinical skills or professional achievement. Giving value and individualized consideration to a wide range of achievements and skills, such as overcoming obstacles and/or interpersonal intelligence can help shape a diverse and successful department.

A holistic review process is not “making up for previous injustice” and it is not a quota system. It does not lower standards, but rather expands them. It does not ignore scholarly metrics; scholarly metrics are just one facet of the broadly defined mission-related factors considered.

How Can You Make a Difference?

“Action and attitude come from the top.” An ally is part of the dominant group and takes action. In order to become an ally, you must change your vernacular and challenge the status quo. An ally is an advocate, driving change by promoting inclusion and social justice, establishing a safe environment, and holding others accountable. As a leader, you can model curiosity, ask questions, and listen. You can help create an ideal learning zone and safe space in which people are accountable and free of microaggressions and harassment.

It is imperative we change the culture and perception of orthopaedics. Further research should be conducted into why URM, women, and LGBTQ+ medical students are not choosing orthopaedics. We can increase the visibility of LGBTQ+ orthopaedic surgeons and support through allyship. URM and women may have difficulty finding

Table 2. Holistic Diversity Initiative at Work to Increase Minority Recruitment and Residency Matching

Year	Number of Positions	Percentage of Applicants of Color*	Percentage of Interns of Color in Class
2012-13	7	0%	0%
2013-14	7	0%	0%
2014-15	8	13%	0%
2015-16	8	13%	13%
2016-17	8	25%	13%
2017-18	11	36%	36%
2018-19	12	33%	25%
2019-20	12	33%	25%
2020-21	12	67%	42%

*ranked in highest tier (unique applicants)

mentors and sponsors, so we can connect students with appropriate mentors and with like groups, such as Pride Ortho, the Ruth Jackson Orthopaedic Society, or the J. Robert Gladden Orthopaedic Society. We can act as role models, exemplifying inclusive and accepting behavior. As mentors, we can help with networking, and as sponsors, we can be personally invested in the professional development and success of our mentees. We can include them in our professional networks and provide introductions to advance their careers and help them succeed. As more women and URM succeed and take on leadership positions, they will also serve as more visible role models, mentors, and sponsors for future generations.

One Department’s Journey

As an example, one department at Nemours recently made substantial changes to recruitment practices. The wording was changed in general job advertisements to be more inclusive. Diversity was emphasized in the resident brochure. Recruitment numbers were tracked for accountability. A more holistic focus was used for application review. The recruiting video was reviewed for implicit bias. Diversity questions were included

during interviews and diversity lens rating was included in overall interview ratings. Progress was tracked over time and there was a significant increase in the diversity of the incoming intern class over the course of 10 years (Table 2).

Summary

Orthopaedic surgery continues to lag behind other specialties in terms of diversity and representation at all levels. For improvement, we must promote awareness among those currently in the field and foster a culture of inclusivity. Allies can help develop this safe space for learning and development. It is important to develop pipeline programs to promote an early interest in orthopaedic surgery by URM and women. A holistic review of applicants, inclusive marketing, and targeted recruitment are all strategies that can enhance diversity, but they are not enough. Longitudinal mentorship and active sponsorship are crucial to the success and development of URM and women orthopaedic surgeons. By working together in these ways to increase the diversity of the orthopaedic workforce, we have the potential to benefit not only our profession but also our patients.

Disclaimer

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