

Methods to increase equity, inclusion, and diversity in Canadian urology programsLevi Godard¹, Julie Wong², Christopher Nguan²¹Department of Medicine, University of British Columbia, Vancouver, BC, Canada; ²Department of Urologic Sciences, University of British Columbia, Vancouver, BC, Canada**Cite as:** Godard L, Wong J, Nguan C. Methods to increase equity, inclusion, and diversity in Canadian urology programs. *Can Urol Assoc J* 2023 May 30; Epub ahead of print. <http://dx.doi.org/10.5489/cuaj.8224>

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ABSTRACT**Introduction:** Women and ethnic minorities are underrepresented at all levels of training and practice in urology residency programs. Equity, diversity, and inclusion (EDI) is a growing field of interest in medical research and business literature, especially regarding recruitment. The objective of this review was to evaluate evidence-based strategies to increase EDI to improve urology residency recruitment.**Methods:** A review was conducted using Ovid Medline to identify publications reporting strategies to increase women and underrepresented minorities (URM) in healthcare fields. An evaluation of business models was incorporated. Identified strategies were sorted and ranked based on how many papers reported an increased proportion of women or URM in their program following implementation.**Results:** We assessed 234 publications from 1972–2022. Eleven underwent full review. Six additional pieces of business literature were reviewed and incorporated. The following methods were most often identified to increase diversity: mentorship and holistic application review (six publications), as well as funded internship programs and diverse selection committees (four**KEY MESSAGES**

- Methods proven to increase diversity in various medical fields include mentorship, holistic application review, and developing funded internship programs.
- Other methods studied in medicine include using standardized rubrics and questions during interview processes and include bias training for committees.
- The above methods were also recommended by business recruitment companies to increase diversity in the workplace.

publications). Diversity statements and application blinding were highlighted by multiple business sources but were each only reviewed in one medical publication.

Conclusions: Recommendations identified include mentorship, holistic application review by diverse selection committees with bias training, and developing funded internship programs. Standardized questions and rubrics were also well-studied. Business strategies, such as publishing diversity statements and application blinding, are less studied in medical education literature. This study is unique in its inclusion of both medical and business literature and highlights concrete strategies for urology residency programs to increase EDI during recruitment.

INTRODUCTION

Canada is known for its multicultural population; however, in the medical field, urology has a well-known diversity gap. An American study from 2019 showed only 30.8% of urology trainees identify as an underrepresented racial minority (URM), a group of individuals in a field that is disproportionately low relative to the general population, compared to 42.3% in other specialties.¹ Moreover, gender disparities are also present with only 25% of Canadian urology trainees identifying as women in 2018.²

Research has demonstrated that training in a racially and ethnically diverse student body milieu creates graduating physicians who are better prepared to treat patients from diverse backgrounds.⁴ To combat this shortcoming in urology, there has been an increased focus in equity, diversity, and inclusion (EDI), as evidenced by the Canadian Urologic Association creating an EDI policy in 2021 and the American Urologic Association (AUA) creating EDI recommendations in 2022.⁵ However, these recommendations do not include directions for training programs.

An EDI policy to guide urology resident selection across Canada could aid in increasing diversity in urology training programs and concomitantly over time, increase the diversity and gender- and cultural sensitivity of practicing urologists. Documented standards for the application and interview process has been shown to increase females and URM in medicine.⁶ With increasing awareness of EDI in society, there is emphasis on implementing EDI principles in recruitment of incoming learners to create a medicine-wide culture change.

The business world has long understood the value of increasing workforce diversity. Opportunities to increase internal collaboration, generate innovation, and expand customer base are just some of the widely recognized benefits of workplace diversity. Increasing diverse leadership has also been demonstrated to increase trust and performance of organizations. Companies may employ strategies to support EDI including education, mentoring, bias training, and incorporating EDI language into policies. Many businesses have developed strategies for

recruitment and applicant selection processes during hiring. This review includes methods used by successful recruiting companies alongside those studied in medicine.

The goal of this review is to broadly assess methods of increasing diversity both within and outside of medicine through the lens of recruitment for surgical trainees, specifically in urology.

METHODS

A literature review was conducted in the Ovid Medline database for information concerning augmentation of diversity in urology residencies, other medical specialties, and fields relating to medicine (Appendix A). We identified 234 unique publications from 1972 to 2022. Titles and abstracts were screened to determine relevance. Those identified as reporting increased diversity underwent full-text review. One publication was a review and so was removed. Four studies discovered through local references from non-indexed journals were included. A total of 11 publications directly investigated methods to increase diversity, 7 resulting from the database. Six of these were quantitative experimental studies.

A broad internet search for recruitment strategies used by hiring firms and business practices was conducted resulting in news articles, major business periodicals, and professional inclusion and diversity consultancy programs. These were sourced through a combination of internet search engine (Google™) and human resources newsletters directly sourced by one of the investigators. These findings were reviewed and selected based on relevance and reliability.

RESULTS

A total of 11 publications were identified as primary sources that implemented one or more methods to increase diversity and were included in this review. All were American and published between 2015 and 2022. One paper was from urology literature and 4 were other surgical specialties. Two papers studied interventions in non-surgical residency programs, and the remainder were in allied healthcare. The total number of methods investigated by one group ranged from 1-7. See Tables 1 and 2 for a summary of findings. Six additional publications from American and Canadian business literature from human resources (HR) and recruiting company newsletters and guides were reviewed (Table 3).

Holistic review and mentorship

Holistic application review and mentorship for underrepresented students were the most common methods of increasing diversity, each with 6 publications demonstrating their efficacy. A holistic review was described as relying less on numeric measures such as test scores or number of publications and rather assessing experiences. The use of standardized test scores and grade point average in admissions consideration decreased the amount of URM in physician assistant programs.¹⁴ Alternatively, a holistic review process in the Advancing Practices Registered Nursing (APRN) fellowship program was implemented with reports that 40-50% of applicants

accepted into the program were non-Caucasian compared to 20% of non-Caucasian registered nurses (RN).¹⁵ Furthermore, diversity of accepted fellows increased from the first year of implementation to the second.¹⁵ Another nursing study implemented a holistic review based on the American Association of Medical Colleges (AAMC) Holistic Review Project and reported an increase in the proportion of non-white students from 40% in 2012 to 55.1% in 2016.^{16, 17}

Specifically in urology, mentorship was a strong or very strong influence for 72% of American applicants.⁷ Female students found same-sex mentorship significantly more important than male students in their decisions to pursue surgical residency.⁸ A study looking at URM matches in surgical specialties showed that over 4 cycles of implementing holistic review, bias training, mentorship, and a funded visiting experience increased URM applicants for surgical subspecialties by 19.4% and all surgical specialty residency programs increased by at least one URM for the first time in the program's history. Mentorship combined with holistic review increased the amount of URM residents in plastic surgery by 23% and pediatrics by 15%.^{10, 11} In emergency medicine there were twice as many URM applicants invited to interview following implementation of a formal mentorship program and those that matched attributed their success to mentorship and an externship program.¹²

Diverse selection committee

Four publications showed an increase in diversity when diverse committees carried out selection. Including one URM faculty member on selection committees was shown to increase URM enrollment in a physician assistant program, pediatrics, and emergency medicine.^{11, 12, 14} Additionally, diverse selection committees and the "Rooney Rule", where at least two underrepresented applicants are selected for interview, were among several strategies implemented to increase diversity in faculty of surgery hires and were found to be immediately successful at doing so.¹⁸ Diversity among selection committees was a common recommendation for businesses aiming to increase diverse hires.^{19, 20, 21, 22, 23}

Funded internship

Funding an internship, externship, or summer clerkship experience for underrepresented students to further exposure to the field is another method shown to increase diversity by 4 publications. One-month subinternships, externships, or summer clerkships resulted in an increase in URM matches to pediatric, emergency, and surgical residencies.^{9, 10, 11, 12}

Standardized questions/rubric

Three publications demonstrated an increase in diversity by implementing standardized interview questions and scoring rubrics, assessment tools that aim to communicate specific criteria for which to evaluate individuals. These methods increased the success rate of diverse nursing applicants getting accepted into training programs.^{15, 17} Moreover, implementing standardized questions during interviews was able to increase the diversity of their faculty surgeon hires.¹⁸

Standardizing the interview was also recommended in business literature to hire diverse candidates.^{20, 21, 22, 23}

Bias training

Three publications implemented mandatory bias training for selection committees. Bias training included workshops, seminars, or online modules to educate around bias encountered during hiring or selection processes. Bias training combined with above methods resulted in an increase in URM pediatric residents at the National Children's Hospital program by 15%, an increase in URM matches in every surgical program at the University of Pennsylvania in 2017 and 2018, and increased the number of diverse hires at the University of Michigan.^{9, 11, 18}

Separate application and interview committees

Different committees for assessing applications than those performing interviews increased diversity post-implementation in 2 publications. There was a significant increase of non-Caucasian admissions to a nursing program in Illinois.¹⁷ The selection processes were also implemented by the APRN nursing fellowship group and resulted in an increase in diversity in their program.¹⁵

Program diversity and diversity statements

The presence of a diverse program was proven to be important for female and URM residency selection in 2 publications. Including a visible diversity statement was one of the strategies used by a pediatric residency program that succeeded in increasing the amount of URM residents from 3-5% in 2015-2017 to an average of 20.5% during 2018-2021.¹¹ The business literature reviewed also recommended including a diversity statement to increase diverse hiring.^{19, 21, 23, 24} When stratifying by AUA section, it was found that South Central and Northeastern sections had a positive correlation between a urology program having female residents and matching female applicants.²⁵ Female urology applicants in America in 2020 reported ranking programs with more female residents and staff higher. The same was true of URM urology applicants.⁷

Second-look event

Second-look events were used by 2 publications as one of their strategies that increased program diversity. These included a weekend event for URM interview candidates to further network and learn about the campus and funding URM candidates to attend a dinner, faculty introduction, and program presentations. In the 2019-2020 recruitment year, the National Children's hospital pediatric residency program included a second-look event for URM students.¹¹ The 2020 match had 15% more URM matches than the years preceding the study (2015-2017).¹¹ The Denver Health Residency in emergency medicine implemented a three-strategy program including URM second-look events, prompt interview invitations, and encouraging URM applicants interview early in the cycle and found that they had an increase in URM residents by 17.6%.⁸

Blinding

Removing identifying information about applicants, including names and gender, was a strategy recommended by 4 different business publications.^{19, 22, 23, 24} However, it was only used by one medical publication and included blinding of pronouns, name of the applicant's graduate program, and those that were interviewing were blinded to applications.¹⁵ These, along with other above methods increased the percentage of URMs in the APRN fellowship program by 25% compared to the population of RNs.¹⁵

DISCUSSION

Application review and interview selection

Holistic application review was one of the most studied methods. The holistic approach improved the proportions of URMs that were selected for interview significantly and was not shown to significantly decrease the quality or average academic metrics of selected applicants.^{9, 10, 11, 17} Additionally, applicant information can be used to include a minimum number of applicants from underrepresented groups in the interview selection process.²⁶ The “two in the pool” or “Rooney rule” has been recognized to improve diversity in both medicine and business.^{18, 19, 21, 22, 24} Previous research has identified that if only one person of a particular group is in a pool of applicants, they are almost always rejected, but if there are at least two of a particular group their chances of being selected increases significantly.^{19, 21} One potential pitfall of this strategy is being used as a quota which superficially increases URMs without addressing inequities of the system and may have a negative effect on retention once accepted.²⁷

In opposition to this finding, blinding was also widely recommended as a strategy by business literature, but not well addressed in the medical literature reviewed. Using identifying information during hiring has been found to increase discrimination, although, blinding is not appropriate when the proportion of underrepresented applicants is low.²¹ Further research should be conducted as to whether blinding would prove beneficial in urology resident selection.

Interview process

The interview process is an area especially subject to implicit bias unintentionally counteracting efforts to increase diversity. To combat this, bias training for interviewers can be used and has been recommended by the AAMC.^{7, 28} Additionally, recruiting a diverse selection committee can help increase diversity in selected applicants.^{29, 30} This also aids to increase visibility of current inclusion present in the program.¹² Creating a diverse recruiting team is recommended by several hiring companies to increase workplace diversity.^{19, 20, 21, 22}

Once a diverse committee is selected and trained, interviewers are to ask each applicant the same set of questions and use a standardized scoring rubric to ensure an equitable interview process.^{26, 30} It has been reported that females are asked about their personal lives, or questions deemed inappropriate, significantly more often than male applicants.³¹ Non-standardized

interviews have also been shown to select for applicants that are naturally outgoing, not necessarily the best suited for the position.^{21, 23} Examples of questions that can mitigate implicit bias include situational judgement tests, questions that pose hypothetical scenarios used to assess decision making capabilities.²⁹

Pipeline initiatives and recruitment

Another strategy is to encourage mentorship among similar groups at multiple levels of training. Mentorship can be promoted during informational events as an example of support for underrepresented groups.^{32, 33} In fact, a lack of positive mentorship has been identified as a barrier to increasing URM students.¹⁴ Mentorship was one of the most mentioned strategies that was proven to statistically increase diversity in medical programs. For female students, having a female mentor has been shown to have an impact on their decision to pursue a surgical career and surgery has seen an increase in female applicants with an increase in female surgeons.^{25, 34} However, there are a lack of female mentors in the Canadian urology field.² Although women now make up over 50% of medical students, the proportion of female urology residents has remained around 25%.³⁵ Males and females are accepted at similar rates with similar qualifications, but fewer females apply to the specialty.^{36, 37} This lack of available mentors may be contributing to the lack of female urologists and urology residents. As female mentorship has been shown to increase female residents, URM mentorship may also then similarly increase URM residents. A shift to increase mentorship would disproportionately increase the uncompensated workload on female and URM residents and staff compared to their male and non-URM counterparts. This is especially true in urology where diversity is currently lacking. However, mentorship increases productivity and decreases burnout among residents in the longrun.³⁸ Mentorship can increase the retention of female and URM residents and staff and ultimately lead to an increase of female and URM urologists.¹³ One of the articles reviewed used mentorship as their only method suggesting that it alone is an effective way to increase diversity within a program.⁸

Exposure to the specialty and faculty are important to increase interest in pursuing urology among medical students. Several groups had implemented a funded internship or visiting clerkship for female and URM students.^{9, 10, 11, 12, 39} Accommodations and travel were funded to increase access for underprivileged students. Following interviews, a strategy connecting URM faculty mentors with interview candidates from similar backgrounds to informally answer questions post-interview has been described.²⁶ These “pipeline initiatives” such as mentorship, early exposure to urology, building relationships with schools in underrepresented populations, and hosting internship recruitment events are among those strategies most studied in the medical literature, and are analogous to the targeted recruitment fairs seen in business literature.²¹ They are also the most challenging to enact into the residency selection process from a resource and practicality perspective.

It is important to receive feedback on the process from participants. Participants should have the ability to anonymously evaluate the interview process to encourage iteration and improvement.²⁶ This information combined with collected metrics can be used to reassess the process each year and allow for constant improvement.

Tracking diversity metrics and feasibility

Tracking diversity metrics is required to determine if changes to recruitment have impacted the percentage of female and URM matches. Tracking metrics has been shown to have a role in increasing salary equity within hospital medicine and is recommended to businesses.^{25, 24} A self-identification census survey of current residents and faculty can be used as a tool to understand the current status of the program, aid in transparency, and was recommended by multiple business publications.^{19, 20, 21, 24} Metrics available for study can provide valuable information to assess progress and areas for improvement. However, accurately tracking metrics can be difficult as it is often optional or includes a “prefer not to answer” option, thus tracking incoming and existing metrics is challenging. Unless self-identification is mandatory, data collected will not be truly representative of the sampled cohort. A visible statement that showcases the program’s commitment to improving representation in urology and EDI in the selection process is recommended by EDI Canada’s Best Practices Guide and an EDI recruiting article by the HR technology company Rakuna.^{24, 40} However, disclosing a diversity statement was only mentioned in one medical publication.¹⁵

A positive correlation has been identified between faculty diversity and the success of recruiting diverse applicants.²⁵ Diversity in applicant pools is key to increasing diversity in residency programs. Studies have shown that using URM-specific promotional materials, inclusive marketing language and images, and additional information sessions, are an important step for encouraging women and URM to apply to programs that are typically less diverse or male-dominated.^{26, 32} These may be incorporated by holding informational events targeted to women and URM groups. More frequent recruitment events have been correlated with an increase in URM enrollment.¹⁴

Methods such as bias training that may involve partaking in the Health Equity series by the Institute for Healthcare Improvement for example, choosing a diverse selection committee that may be informed by following ideas outlined by documents that aim to increase committee diversity such as that by the University of Victoria, and using a set of guidelines, such as the rubric designed by the University of California to create and include a diversity statement in program descriptions are all evidence-based methods with a low barrier to entry that could be more easily implemented by programs than those such as mentorship programs and funded internships.^{41, 42, 43} However, resources to implement such programs do exist such as that by the Canadian Medical Association.⁴⁴

Limitations

A limitation of this review was that although it may be necessary to implement multiple approaches concurrently, this leads to difficulty distinguishing which methods are most effective individually. Many studies were also performed at single institutions and, like many other studies of this nature, tend to have low numbers and rely on self-identification surveys that may have low response rates and could be difficult to interpret. All studies were conducted with American data and thus may not be generalizable as diversity can vary by geography. Although much of the data is likely similar, we cannot say that it is directly reflective of the cultural climate of Canada. However, there were no publications from Canadian sources available at the time of review that directly investigated the methods discussed. Some methods in this study are less feasible than others for residency programs to implement such as mentorship programs and funded internships due to their longitudinal and resource-heavy nature. Specifically, mentorship would place a disproportionate and uncompensated responsibility on those URM individuals in urology due to the lack of diversity in the field currently. Lastly, several of the methods listed have not been specifically tested in medicine such as implementing targeted recruitment fairs and inclusive language advertising as mentioned in the business literature. Those directly tested in nursing institutions may also have limited applicability to medicine.

CONCLUSIONS

Working towards increasing diversity in urology is important to better serve Canada's multicultural population. This review demonstrates evidence-based recommendations to augment urology residency selection. The most widely used were mentorship and holistic application review. Novel strategies suggested in business literature like blinding applications and visible diversity statements are not yet well-studied in medical literature but prove promising. Tracking diversity metrics may increase proportions of women and URM, although collecting consistent and accurate data may be challenging. Using a standardized self-identification questionnaire among programs and years may increase consistency of data, although if voluntary or "prefer not to answer" options exist, the data may still be limited in utility. This review provides a window into possible strategies to increase women and URM recruitment and will hopefully encourage increasing research and attention to EDI medicine and in urology. Working to increase diversity in residency programs, we will be one step closer to having diverse Canadian Urologists serving increasingly diverse Canadians.

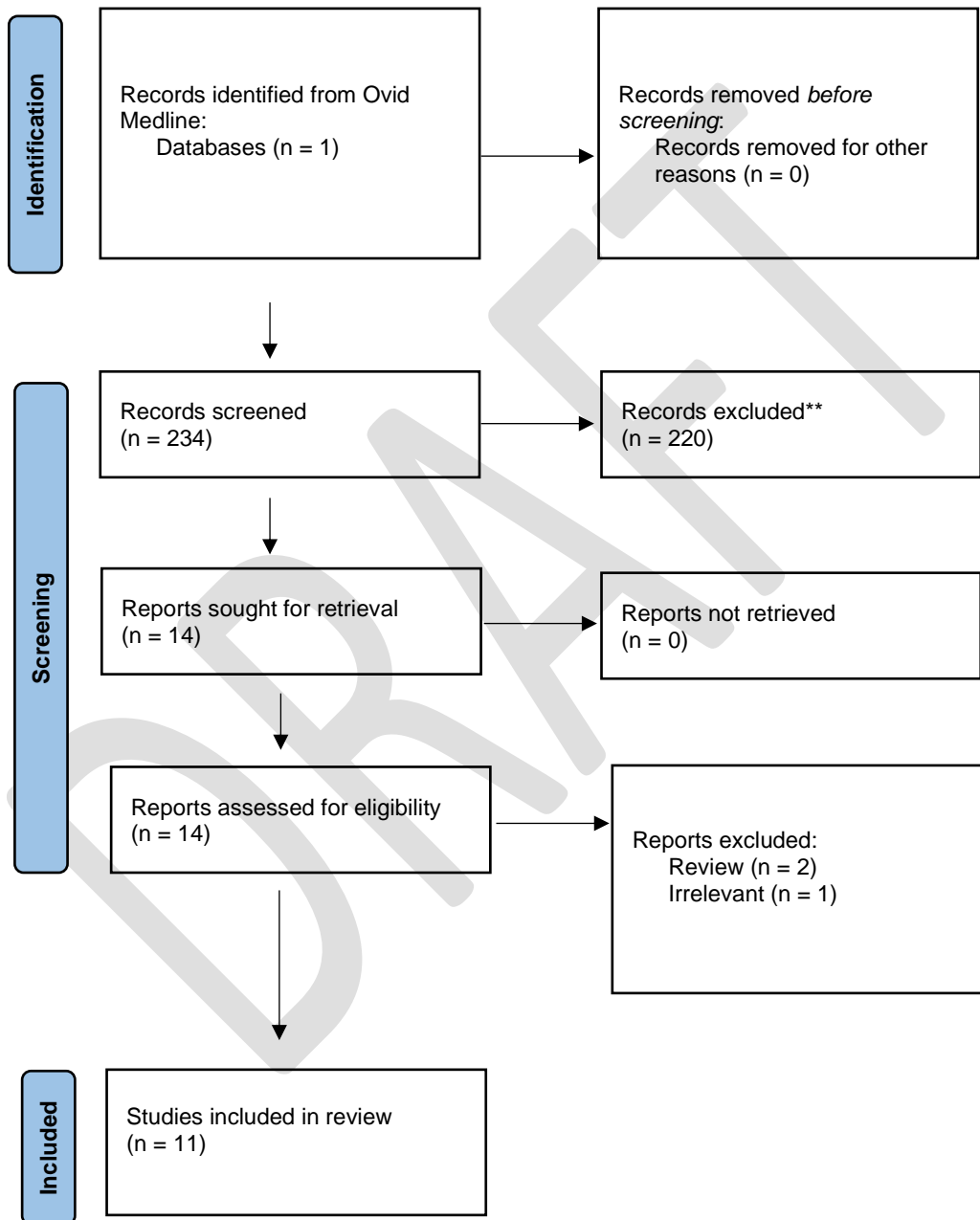
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FIGURES & TABLES

Figure 1. Flow diagram depicting selection of publications from Ovid Medline.

Author, year	Method assessed													Total
	Mentorship	Holistic review	Diverse committee	Funded internship	Standardized questions/rubric	Bias training	Program diversity	Application, interview committees	Second-look event	Diversity statement	Blinding	“Rooney rule”	Early interview	
Hoff, 2022 ¹¹	x	x	x	x		x			x	x				7
Tunson, 2016 ¹²	x		x	x					x				x	5
Butler, 2019 ⁹	x	x		x		x								4
Dossett, 2019 ¹⁸			x		x	x						x		4
Raghu, 2022 ¹⁵		x			x			x			x			4
Zerwic, 2018 ¹⁷		x			x			x						3
LLado-Farrulla, 2021 ¹⁰	x	x		x										3
Wong, 2021 ⁷	x						x							2
DiBaise, 2015 ¹⁴		x	x											2
Findlay, 2021 ²⁵							x							1
Faucett, 2017 ⁸	x													1
Total	6	6	4	4	3	3	2	2	2	1	1	1	1	

Table 2. Reported % increase in women and/or URMs by each quantitative study		
Publication	% increase in URM	Methods studied
Hoff, 2022 ¹¹	16	Mentorship, holistic review, diverse committee, funded internship, bias training, second-look event, diversity statement
Tunson, 2016 ¹²	18	Mentorship, diverse committee, funded internship, second-look event, early interview
Butler, 2019 ⁹	19	Mentorship, holistic review, funded internship, bias training
Zerwic, 2018 ¹⁷	15	Holistic review, standardized questions/rubric, application interview committees
Raghu, 2022 ¹⁵	25	Holistic review, standardized questions/rubric, application interview committees, blinding
LLado-Farrulla, 2021 ¹⁰	23	Mentorship, holistic review, funded internship
Faucett, 2017 ⁸	18	Mentorship

Table 3. Most common recommended methods to increase diversity by recruiting companies

Method assessed									
Author	Diverse committee	Targeted recruitment fairs	Standardized interview	Diversity statement	Blinding	“Rooney rule”	Diversity metrics	Inclusive language	Total
Menzies ^{21,23}	x	x	x	x	x	x	x	x	8
Harver ¹⁹	x	x		x	x	x	x		6
Rakuna ²⁴		x		x	x	x	x		5
Mittman ²²	x		x		x	x			4
Kramer ²⁰	x		x					x	3
Total	4	3	3	3	4	4	3	2	