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# Honorary authorship in postgraduate medical training

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## ABSTRACT

**Objectives** To determine whether postgraduate medical trainees are exposed to honorary authorship, whether they are aware of the topic and if they believe that further support and education concerning this issue is needed.

**Methods** Postgraduate medical trainees were contacted by email with a link to our questionnaire on two occasions (2 and 26 February 2014) and then contacted in person (June–November 2014). The questionnaire topics included demographics, authorship practice beliefs and experience, and authorship policy-related questions. We also determined the proportion of perceived, International Committee of Medical Journal Editors (ICMJE)-defined and unperceived honorary authorship in the respondent group.

**Results** The response rate was 27.7%. The prevalence of perceived, ICMJE-defined and unperceived honorary authorship was 38.1%, 57.3% and 24.2%, respectively; 90.1% were unaware of the ICMJE authorship criteria, 92.6% were unaware of a support system for authorship disputes, but 91.8% believed such a system should be implemented and 93.3% believed medical trainees and faculty should be instructed on authorship guidelines.

**Conclusions** A paradigm shift from the current system is needed, where enforcement of ethical authorship practices is shifted away from journal editors. Instruction on the topic should be provided to medical trainees throughout medical school and continued during further training. A process should also be outlined to resolve authorship disputes. These measures may encourage researchers to have an open discussion on the topic prior to the commencement of a research project, and to resolve authorship conflicts in a constructive manner. We also hope this paper encourages further work on the topic.

## INTRODUCTION

The term 'author' is defined as "one that originates or creates *or* the writer of a literary work (such as a book)".[1] In biomedical publications the term 'author' has been defined by various committees, but generally relates to the creation of new knowledge through a published work. Various types of publications exist, but original research manuscripts have been the focus of most scholars with regard to ethical authorship practices. Initially, these forms of publications involved one author but, as the complexity of research has advanced, the number of authors listed on publications has also increased. Naturally, as more individuals are involved in the creation of a publication, human nature rears its ugly head.

Stewart and Feder reviewed the publications involved in the Darsee affair, which was one of the first cases of scientific misconduct to attract international attention.[2] In a review of 18 full-length publications by Darsee, Stewart and Feder found—along with data fabrication—that 13 of them included at least one author who was not directly involved in the project.[3] It was suggested that these undeserving authors were included to increase the chance of publication of Darsee's fabricated results.[3] Stewart and Federer's paper went on to define this practice as 'honorary authorship'.[3] Although the definition of honorary authorship has varied in subsequent publications, the commonality between various descriptions is that it refers to the inclusion of a coauthor whose contributions did not warrant authorship. In addition, 'gift authorship' (when a colleague is added in an attempt to receive a similar 'gift' in response) and 'guest authorship' (when an influential coauthor is added to the paper with the hope of increasing the chance of publication and the prestige of the publication) have been defined in the literature.[4] All three terms have also been used synonymously in reference to the inclusion of undeserving coauthors, regardless of the reason.[5]

Several organisations have tackled the issue of honorary authorship, the most prominent being the International Committee of Medical Journal Editors (ICMJE). In 1979 the ICMJE published guidelines, the *Uniform Requirements for Manuscripts Submitted to Biomedical Journals*, which are now followed by more than 500 biomedical journals.[6] While the initial version focused on reference formatting, it has more recently been known for its focus on authorship requirements. The newest edition explicitly defines authorship criteria, and also defines non-authorship tasks in more detail than previous editions (box 1).[7] The fourth requirement—to be accountable for all aspects of the work—is new to this edition and has not yet been widely incorporated by journals.

In Canada there are three federal granting councils which promote the *Tri-Council Policy Statement on Integrity in Research and Scholarship*, which states that "authorship of published work includes all those who have materially contributed to, and share responsibility for, the contents of the publication, and only those people". A recent report found that 62.9% of universities across Canada make mention of authorship in their research policy.[8] None of the Canadian medical schools or accreditation bodies for postgraduate and undergraduate medical training have published further guidelines on this topic or made it a required component of the undergraduate or postgraduate medical training curriculum. In the USA, 52% of the top 50 US academic medical centres did not have published authorship criteria, and a large proportion of those that did were not reflective of the ICMJE authorship criteria.[9]

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**Box 1 The International Committee of Medical Journal Editors (ICMJE) recommends that authorship be based on the following four criteria**

1. Substantial contributions to the conception or design of the work; or the acquisition, analysis or interpretation of data for the work.
2. Drafting the work or revising it critically for important intellectual content.
3. Final approval of the version to be published.
4. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Examples of activities that alone (without other contributions) do not qualify as contributions for authorship are acquisition of funding; general supervision of a research group or general administrative support; and writing assistance, technical editing, language editing and proofreading.

Several studies have investigated the rate of honorary authorship in medical research, with rates ranging from 17.0% to 57.6%.[4] [10–20] A systematic review of the literature analysed 14 survey-based studies from various disciplines and noted a pooled weighted prevalence of 29% for researchers reporting their own or others' experience with misuse of authorship. The reason for the discrepancy in rates between papers may in part be due to the fact that they looked at different prevalences of honorary authorship (respondents' most recent publication, proportion of respondents including an honorary author in any of their previous publications, proportion of all coauthors who were honorary in the respondents' previous publication or respondents' awareness of a colleague involving an honorary author).[4] Karani *et al*[21] were the first to survey medical trainees (medical students at a national conference who were enrolled in a year-long research fellowship) and found that 18% had concerns with the contribution of their coauthors, 65% were aware of the ICMJE criteria, but 66% reported no formal training on the criteria and 41% believed such training would be of value. To date, no studies have investigated the authorship knowledge and experiences of medical trainees who have progressed past medical school.

In Canada the term 'undergraduate medical trainee' is used to describe trainees in medical school and 'postgraduate medical trainee' is used to describe those enrolled in a family medicine, medical or surgical subspecialty programme. Family medicine and medical or surgical subspecialty training is organised through 17 Canadian medical schools. Family medicine training programmes are 2 years in duration and most medical and surgical subspecialty training programmes are 5 years in duration. The objectives of this paper were to determine (1) whether postgraduate medical trainees at one Canadian medical school were exposed to honorary authorship; (2) whether they were aware of the topic; and (3) whether they believed further support and education is needed about this topic.

## METHODS

### Participants

The target group of our questionnaire survey comprised postgraduate medical trainees (all years of training) enrolled in family medicine, medical subspecialty and surgical subspecialty training programmes at the University of Alberta.

### Questionnaire

#### Content

The full content of the questionnaire is given in online supplementary appendix 1 and was modified from the questionnaire developed by Rajasekaran *et al*.[4] The content included identifying characteristics (demographics), awareness of authorship criteria and the topic in general, awareness of department or university authorship policy or support system to resolve authorship conflicts, their perspective on the inclusion of a curriculum on ethical authorship practices and their research experience. If respondents were involved in research during their training, further questions were asked detailing the involvement of their coauthors, whether an authorship dispute occurred and whether they felt an honorary author was involved in their project.

#### Distribution

In the first distribution of the study (2 February 2014), participants were contacted directly via email by the College of Medicine. The email defined honorary authorship and named the ICMJE without stating its authorship criteria. The email also included a link to our electronic survey. In the second distribution (26 February 2014), trainees were contacted by their programme assistant who sent the same email. In the third distribution, programme directors in family medicine, the medical subspecialty programme and the surgical foundations programme were contacted to obtain their consent to administer a paper copy of the survey in person to trainees, which occurred between June and November 2014.

#### *Data analysis*

Responses to each question were calculated as percentages, together with their numerators and denominators. The denominator of proportions obtained throughout the survey varied as some respondents chose not to answer certain questions. The definitions of perceived, ICMJE-defined and unperceived honorary authorship and the questions used to categorise respondents into each definition of honorary authorship are outlined in table 1. Respondents who were not involved in a research project in residency were excluded from the denominator for the prevalence of the three definitions of honorary authorship.

#### *Ethical committee permission*

The study was approved by the University of Alberta Research Ethics Board and the survey was approved for distribution to postgraduate medical trainees by the Trainee Research Access Committee.

## RESULTS

### Participants

The number of responses to the third distribution (151/815, 18.5%) was much greater than the first and second distributions (60/815, 7.4% and 15/815, 2.9%, respectively; figure 1). The total response rate of our survey was 27.8% (226/815) (figure 1).

### Demographics

Trainees in medical subspecialty programmes composed the largest group of respondents (143/226, 63.3%; table 2). The year of training was evenly distributed between first and second year trainees, with the remainder in higher years of training (table 2). All but 18/204 trainees (8.8%) completed medical school in Canada, and the sex was evenly distributed (table 2).

**Table 1** Definitions of honorary authorship used to categorise primary outcome measures

| Type of honorary authorship | Definition | Responses |
|---|---|---|
| Perceived honorary authorship | Indicating that, in the opinion of the first author, a coauthor did not make sufficient contribution(s) to the manuscript to warrant authorship | Answered 'yes' to:<br>▶ Have you included an honorary author (naming an individual who has not made substantial contributions as an author) in a previous poster/podium presentation or manuscript? |
| ICMJE-defined honorary authorship | Indicating a coauthor did not perform all three of the authorship criteria defined by the ICMJE* | Answered 'yes' to one of these questions:<br>▶ Have any of the coauthors on your research project(s) in residency not been involved in the conception or design?<br>▶ Have any of the coauthors on your research project(s) in residency not been involved in the acquisition, analysis or interpretation of data for the work?<br>▶ Have any of the coauthors on your research project(s) in residency not been involved in drafting the work or revising it critically for important intellectual content?<br>▶ Have any of the coauthors on your research project(s) in residency not been involved in the final approval of the version to be published?<br>▶ Have any of your coauthors performed only the statistical analysis and contributed nothing else to the research project(s)? |
| Unperceived honorary authorship | Respondents who included an ICMJE-defined honorary authorship, but did not perceive an honorary author was included | Answered 'yes' to one of the questions included in the definition of ICMJE-defined honorary authorship and 'no' to the question used to define perceived honorary authorship |

*The fourth criterion of the new ICMJE authorship criteria (box 1) was not used to categorise ICMJE-defined honorary authorship as it has not been widely incorporated by biomedical journals.
ICMJE, International Committee of Medical Journal Editors.

### Institutional authorship policies

The majority of respondents noted that their department required the inclusion of a staff member as a supervisor on a research project, but almost the same proportion noted that a staff member was not required as a coauthor for a research publication (table 3). Over 90% of respondents were unaware of departmental or collegiate authorship guidelines, and approximately the same proportion noted that there was no process available through their College of Medicine to resolve authorship disputes (table 3). One hundred and ninety-six respondents (93.3%) also believed that instruction on authorship guidelines should be provided by their College of Medicine to faculty and undergraduate (medical students) and postgraduate (family medicine and medical or surgical subspecialties) medical trainees (table 3).

### Research experience and awareness of authorship guidelines

Almost two-thirds of respondents (62.9%, 134/213) were involved in a research project during their training programme, with 68.8% (86/125) of those involved in research also having experience with manuscript submission (table 4). Of those involved in a research project, 27.2% (34/125) noted issues with contributions by co-investigators and, of those having issues, 58.1% (18/31) did not discuss them with anyone (table 4). The general issue of honorary authorship was familiar to 39.1% (88/225) of respondents, and 9.9% (22/223) were aware of the ICMJE authorship criteria (table 4). Awareness of a co-resident including an honorary author on a publication was noted by 25.4% (53/209) of respondents (table 4). The number of trainees who had published none or one publication was fairly even, totalling 50.4%, while the remainder had published more manuscripts (table 4).

### Honorary authorship

Of the 134 postgraduate trainees involved in research projects, 38.1% (51/134) reported the inclusion of an honorary author in their abstract or manuscript publication (table 5). The majority of

**Figure 1** Overview of total responses and responses by subspecialty and distribution of questionnaire. CCFP, College of Family Physicians Canada; FRCPC, Fellow of the Royal College of Physicians of Canada; FRCSC, Fellow of the Royal College of Surgeons of Canada.

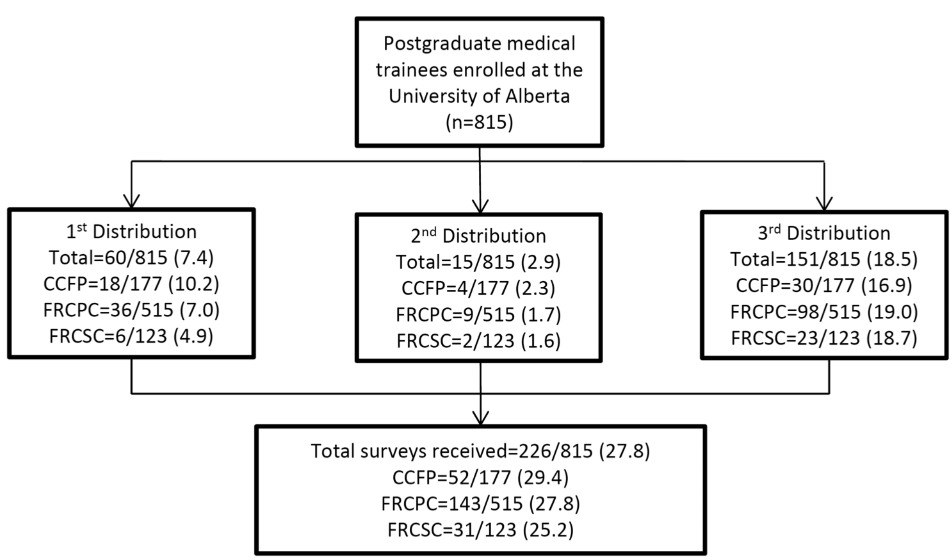

**Table 2** Demographic characteristics of respondents

| Characteristic | N (%) responses |
|---|---|
| Residency programme | |
| CCFP | 52/226 (23.0) |
| FRCPC | 143/226 (63.3) |
| FRCSC | 31/226 (13.7) |
| Level of residency | |
| PGY1 | 67/202 (33.2) |
| PGY2 | 69/202 (34.2) |
| PGY3 | 36/202 (17.8) |
| PGY4 | 14/202 (6.9) |
| PGY5 | 13/202 (6.4) |
| PGY6 | 3/202 (1.5) |
| Medical school | |
| Canadian | 186/204 (91.2) |
| International | 18/204 (8.8) |
| Sex | |
| Male | 108/204 (52.9) |
| Female | 96/204 (47.1) |

CCFP, College of Family Physicians Canada; FRCPC, Fellow of the Royal College of Physicians of Canada; FRCSC, Fellow of the Royal College of Surgeons of Canada; PGY, postgraduate year.

honorary authors (85%, 34/40) were staff members in their department (table 5). Several reasons were noted for the inclusion of an honorary author, with the majority (66.7%, 30/45) indicating that it was done at the request of someone else (table 5).

**Table 3** Respondents' awareness of institutional authorship policies and beliefs of their involvement in authorship issues

| Characteristic | N (%) responses |
|---|---|
| Department requires the inclusion of a staff member as a supervisor for resident research projects | |
| Yes | 130/216 (60.2%) |
| No | 86/216 (39.8%) |
| Department requires the inclusion of a staff member as a coauthor in resident research projects | |
| Yes | 73/207 (35.3%) |
| No | 134/207 (64.7) |
| Department has its own authorship guidelines | |
| Yes | 1/216 (0.5%) |
| No | 18/216 (8.3%) |
| I do not know | 197/216 (91.2%) |
| College of Medicine has its own authorship guidelines | |
| Yes | 4/216 (1.9%) |
| No | 9/216 (4.2%) |
| I do not know | 203/216 (94.0%) |
| The process outlined by the department or College of Medicine is available to residents to resolve authorship disputes | |
| Yes | 15/204 (7.4%) |
| No | 189/204 (92.6%) |
| College of Medicine should outline a process for resolving authorship disputes | |
| Yes | 191/208 (91.8%) |
| No | 17/208 (8.2%) |
| College of Medicine should instruct faculty, residents and medical students to follow internationally accepted authorship guidelines | |
| Yes | 196/210 (93.3%) |
| No | 14/210 (6.7%) |

**Table 4** Respondents' research experience and awareness of ICMJE authorship guidelines

| Characteristic | N (%) responses |
|---|---|
| Involvement in a research project | |
| Yes | 134/213 (62.9) |
| No | 79/213 (37.1) |
| Experience with manuscript submission | |
| Yes | 86/125 (68.8) |
| No | 39/125 (31.2) |
| Number of articles published in peer-reviewed journals | |
| 0 | 34/125 (27.2) |
| 1 | 29/125 (23.2) |
| 2 | 21/125 (16.8) |
| 3 | 14/125 (11.2) |
| 4 | 3/125 (2.4) |
| 5 | 10/125 (8.0) |
| ≥6 | 14/125 (11.2) |
| Had issues with a co-investigator not contributing to a research project | |
| Yes | 34/125 (27.2) |
| No | 91/125 (72.8) |
| If yes, who they discussed it with | |
| Nobody | 18/31 (58.1) |
| Senior investigator | 10/31 (32.3) |
| Research director | 2/31 (6.5) |
| Programme director | 1/31 (3.2) |
| Aware of the ICMJE authorship guidelines | |
| Yes | 22/223 (9.9) |
| No | 201/223 (90.1) |
| Aware of the general issue of 'honorary' authorship | |
| Yes | 88/225 (39.1) |
| No | 137/225 (60.9) |
| Aware of other residents in the residency programme including an honorary author on a publication | |
| Yes | 53/209 (25.4) |
| No | 156/209 (74.6) |

ICMJE, International Committee of Medical Journal Editors.

### ICMJE authorship criteria

The first ICMJE authorship criterion (box 1) was split into two questions and, cumulatively, 48% (61/127) of respondents reported that a coauthor did meet the criterion (table 6). Compared with the first criterion, fewer respondents reported that coauthors did not qualify for the second (31.7%, 40/127) and third (18.3%, 23/126) ICMJE criteria (table 6). Almost half of the respondents (44.3%, 54/122) reported that the new fourth criterion was not met by a coauthor (table 6). Inclusion of a coauthor who performed only the statistical analysis and made no other contribution to the paper was reported by 26.6% (33/124) of respondents (table 6).

### Honorary authorship rates

As noted previously, 38.1% (51/134) of respondents indicated they had included an honorary author on their paper or abstract which was defined as perceived honorary authorship, 57.3% (51/134) indicated that coauthors had not met one or more of the ICMJE criteria (ICMJE-defined honorary authorship) and 24.2% (30/124) indicated that coauthors had not met ICMJE criteria but had denied that they had included an honorary author (non-perceived honorary authorship).

**Table 5** Experience of respondents who perceived the inclusion of an honorary author

| Characteristic | N (%) responses |
|---|---|
| Included an honorary author who was a staff member in their department | |
| Yes | 34/51 (66.7) |
| No | 17/51 (33.3) |
| Title of included honorary author | |
| Research supervisor | 17/40 (42.5) |
| Research director | 4/40 (10.0) |
| Department/section head | 4/40 (10.0) |
| Staff member | 8/40 (20.0) |
| Other | 6/40 (15.0) |
| Programme director | 1/40 (2.5) |
| Reason for inclusion of honorary author (respondents could choose more than one answer) | |
| Someone else insisted you include honorary author | 30/45 (66.7) |
| Improve chance of abstract/manuscript acceptance | 12 (26.7) |
| Afraid of repercussion of excluding honorary author | 12 (26.7) |
| Curry favour with staff member | 7 (15.6) |
| Honorary author insisted you include him/her | 5 (11.1) |
| Other | 5 (11.1) |
| Improve chances of obtaining appointment in department after graduation | 4 (8.9) |
| Departmental policy | 4 (8.9) |

**Table 6** Respondents' authorship practices based on the ICMJE criteria

| Characteristic | N (%) responses |
|---|---|
| Coauthors were not involved in the conception or design | |
| Yes | 51/127 (40.2) |
| No | 76/127 (59.8) |
| Coauthors were not involved in the acquisition, analysis or interpretation of data for the work | |
| Yes | 48/127 (37.8) |
| No | 53/127 (41.7) |
| Project(s) have not progressed this far | 26/127 (20.5) |
| Coauthors were not involved in drafting the work or revising it critically for important intellectual content | |
| Yes | 40/126 (31.7) |
| No | 55/126 (43.7) |
| Project(s) have not progressed this far | 31/126 (24.6) |
| Coauthors were not involved in the final approval of the version to be published | |
| Yes | 23/126 (18.3) |
| No | 69/126 (54.8) |
| Project(s) have not progressed this far | 34/126 (27) |
| An agreement was made with all coauthors to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately addressed | |
| Yes | 54/122 (44.3) |
| No | 68/122 (55.7) |
| Coauthors performed only the statistical analysis and contributed nothing else to the research project(s) | |
| Yes | 33/124 (26.6) |
| No | 57/124 (26.0) |
| Project(s) have not progressed this far | 34/124 (27.4) |

ICMJE, International Committee of Medical Journal Editors.

## DISCUSSION

Our data suggest that the respondents were largely unaware of internationally accepted authorship criteria. Most postgraduate medical trainees felt it should be an area of focus for their respective College of Medicine to detail their own authorship policy and also to provide a means of resolving authorship disputes. The rates of perceived and ICMJE-defined honorary authorship are of concern and require further study. We attempted to quantify the rate of respondents who did not perceive the inclusion of an honorary author (unperceived honorary authorship) and found this rate was high.

There needs to be a paradigm shift from the current system, where enforcement of ethical authorship practices is shifted away from journals editors. Instruction on the topic should be provided to medical trainees throughout medical school and continued throughout postgraduate training and enforced through accreditation standards. Furthermore, a process should be outlined to resolve authorship disputes which is available to faculty and medical trainees. Undertaking these measures may lead to an improvement in awareness of the topic and encourage researchers to have an open discussion on the authorship prior to the commencement of a research project. Having a framework for each coauthor's responsibilities may encourage those involved in the project to adhere to them, and this framework can also be used to resolve authorship conflicts which may arise during or after the completion of a research project. It is hoped that this paper will encourage medical trainees to advocate for more training and support on ethical authorship practices and that those in positions of power will support these changes. Ultimately, there may be instances where the right decision was made to include a coauthor who did not meet the ICMJE authorship criteria, but this decision cannot be made unless researchers are fully aware of the criteria and have a support system in place to resolve an authorship dispute if they decide to exclude a coauthor.

It is of interest to compare the rates of honorary authorship obtained in our paper with those reported in the literature. The five most recent papers on honorary authorship in the medical field used a similar methodology to ours and reported rates of perceived honorary authorship of 18.0–33.4%,[4 11 12 16 20] which is slightly below that reported in our paper (38.1%). Four of these studies also reported a rate of ICMJE-defined honorary authorship of 50.3–57.6%; the rate reported in our paper (57.3%) is at the upper range of these studies.[4 11 12 16] It is important to note that these papers listed non-authorship tasks and defined the rate as the proportion of respondents who noted at least one coauthor who only completed one or more of these tasks.[4 11 12 16] We decided to directly ask respondents which of the three original criteria coauthors did not perform, and also included only performing the statistical analysis to avoid any ambiguity (box 1). These five papers also looked at the correlation of factors in relation to the rates of perceived and ICMJE-defined honorary authorship and found several associations.[4 11 12 16 20] We did not perform this analysis in our study. It does appear that the rates of honorary authorship extracted from our data are in keeping with those previously reported.

The manner in which the rate of honorary authorship is determined in a study is also important to consider. Marusic *et al*[22] investigated the effect of the structure of the question used to extract the rate of honorary authorship (open-ended, categorical and instructional). They found that the instructional format had a lower rate than the open-ended and categorical rates, and proposed that the most likely reason for this discrepancy was the desire of the corresponding authors to conform to socially (editorially) desirable answers.[22] Thus, our rate of perceived honorary authorship could underestimate the true rate of honorary authorship, as the manner in which the question was posed may have discouraged respondents from answering in the affirmative in cases where honorary authorship existed. However, caution must be exercised when using the ICMJE criteria as the gold standard for defining authorship. When researchers who were largely unaware of the ICMJE criteria were introduced to them, they largely disagreed that all three of the older criteria needed to be followed, and that fulfilling just one should merit authorship.[23] It could be reasonable to assume that the true rate of perceived honorary authorship in our study lies somewhere between our reported rates of perceived and ICMJE-defined honorary authorship, as some respondents may have falsely responded in the negative to question 14, and others who responded in the negative to question 14 and in the affirmative to questions 17–20 or 22 disagreed with the ICMJE authorship criteria. Although some respondents may have disagreed with the ICMJE criteria in theory, the alarmingly high rate of unawareness of the criteria (90.1%) is a cause for concern. It would be interesting to see if the proportion of perceived honorary authorship increased in future studies after making respondents aware of the ICMJE authorship criteria.

It appears clear that honorary authorship is an issue, and one of the central components of this issue in medical trainees is a lack of awareness of the topic in general and the ICMJE authorship criteria. Our respondents almost unanimously indicated that institutions should provide instruction and support on this issue. The effect of authorship instruction on the agreement of medical students with the ICMJE criteria was investigated by Hren *et al*,[24] who found that both groups given and not given instruction on authorship recognised the first two ICMJE criteria as important but only the group given authorship instruction considered the third criterion to be important (box 1). This finding is consistent with previous literature, where the third criterion was found to be the least important to researchers who were also largely unaware of the ICMJE authorship criteria.[23] Hren *et al*[25] also investigated whether instruction about formal authorship criteria affected medical students' decisions about authorship dilemmas and found no difference between the groups, but did note that those given instruction on authorship attempted to use the ICMJE criteria to make their decision. These findings suggest that trainees are open to using the ICMJE criteria for authorship, but more extensive training may be required on the topic for them to use the criteria properly.[25]

Medical students surveyed on the topic by Karani *et al* suggested various means of providing this training, including self-directed modules, discussion guides and structured didactic sessions.[21] The authors of this study went on to suggest the creation of a multiformat curriculum to which medical trainees could be exposed throughout their training.[21] This adds to the growing argument of moving the responsibility of authorship policing away from journal editors, as the use of research contribution declaration forms by journals has been ineffective in addressing unethical authorship practices.[26]

One of the limitations of this study was the low response rate. However, it is much the same as that reported in similarly designed studies on the topic (15.8–36.8%).[4 11 12 16 20] An older study on the topic performed by coauthors affiliated with the American Medical Association obtained a response rate of 70.3%. Second, we presented data from one postgraduate medical training centre, which limits the general applicability of our findings. The findings of this study would probably not differ from other training centres in Canada or the USA as they follow the same accreditation standards. Of note, a previous unpublished iteration of this study was attempted across all English speaking medical schools in Canada. This study was limited by very low response rates to the online survey and seven centres declined to participate in the study. Of the seven centres that declined to participate, three provided us with the policy used to make this decision and the other four declined to explain their decision. In addition, the accuracy of the responses was susceptible to recall bias, our survey was not validated and our respondents were skewed to lower years of training, which may have had an unknown effect on our findings.

Despite the significant weaknesses of this survey-based study, our results support the need to change the medical education system to include support and education about ethical authorship practices. In addition, we hope this paper encourages researchers to study this topic in medical trainees. However, before embarking on further research on the topic, a validated survey must be created to ensure the results can be properly interpreted. Furthermore, encouraging involvement of multiple training centres and attempting to administer questionnaires in person may further improve the applicability of the results. To date, authorship policy has focused on original research manuscripts but, as further research is undertaken on this issue and policy changes are contemplated, it would be advantageous to recognise that different authorship guidelines are needed for the multitude of manuscript types now accepted by journals (eg, case reports, clinical reviews, systematic reviews).

### Main messages

- Over one-third of postgraduate trainees involved in research projects noted the inclusion of an honorary author.
- Most postgraduate trainees are unaware of the International Committee of Medical Journal Editors (ICMJE) authorship guidelines.
- Authorship should be included in the curriculum of every medical school and at higher levels of medical training. In addition, a support system to address authorship disputes should be implemented.

### Current research questions

- What effect would a structured authorship curriculum in medical training have on medical trainee authorship practices and understanding of the topic?
- Would research supporting the implementation of ethical authorship practices in medical training encourage medical accreditation bodies to implement such a curriculum at the national level across the world?
- What are the current obstacles for providing medical trainees and junior physicians with support when faced with addressing unethical authorship practices?

**Contributors** SR: conceived and designed the study, supervised data collection, prepared the first draft of the manuscript, addressed reviewer comments, prepared the final manuscript and approved the final version. AL: reviewed the study design, collected study data, reviewed the manuscript and approved the final version of the manuscript. A-RA, NA: reviewed the study design, reviewed the manuscript and approved the final version of the manuscript. All authors agreed to be accountable

for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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