Knowledge Syntheses in Medical Education: Examining Authors’ Gender, Geographic Location, and Institutional Affiliation

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Purpose: In medical education, researchers are encouraged to publish knowledge syntheses and educators to apply those findings. Knowledge syntheses are produced by author teams, which are required to make many, often subjective decisions during the review process. These decisions can impact the conduct and conclusions of knowledge syntheses, creating important implications for the field's evidence base. Additionally, author decisions can be guided by author characteristics and the institutional cultures and power structures within which they operate. In medical education, we know little about who writes knowledge syntheses and thus do not know which author voices dominate or are absent. The purpose of this study is to examine and describe the characteristics of knowledge syntheses authors, focusing on gender, geographical location, and institutional affiliation. This work is meant to illuminate who is creating the evidence base in medical education through their knowledge synthesis efforts.

Methods: We conducted a case study of authors of knowledge syntheses published between 1999 and 2019 that included citations for 963 knowledge syntheses in 14 core medical education journals. We created a publicly accessible dataset in 2020 and enriched it by characterizing the authors using Genderize.io, a gender prediction tool, the World Bank Country Classification, and Times’ Higher Education World University Rankings 2020. We calculated descriptive statistics using Google Sheets, and we visualized the data using Tableau.

Results: We identified 4,110 authors across all authorship positions, of which 3,199 were unique authors. The number of authors per knowledge synthesis ranged from 1 to 60 with an average of 4.31 (SD = 3.07, median = 4). Seventy-nine knowledge syntheses (8.2%) were single-author publications. Over the 20-year time period analyzed, the average number of authors per knowledge synthesis increased (M = 1.80 in 1999; M = 5.34 in 2019).

We identified the gender of 4,052 author names. Knowledge syntheses were authored by 2,047 females (50.5%) and 2,005 males (49.5%) across all author positions. More females were listed as first (n = 494; 51.9%) and second authors (n = 483; 55.4%), whereas last author (for those papers with more than 1 author) was held by more males (n = 404; 56.0%).

Across all authorship positions, authors listed affiliations in 58 countries. Fifty-four knowledge syntheses (5.6%) included authors from low- or middle-income countries (LMIC). By number of knowledge syntheses, the United States (n = 366; 38%), Canada (n = 233; 24%), and the United Kingdom (n = 180; 19%) were most represented. The most countries represented on a single-author team were 7. Eighty percent (n = 767) of knowledge syntheses included authors from a single country only, who were predominantly located in the United States (n = 271; 22%), Canada (n = 149; 12%), and the United Kingdom (n = 122; 10%).

First authors represented 374 unique institutions with the greatest representation from the University of Toronto (n = 55; 6%) and the Mayo Clinic (n = 32; 3%). Of the top 100 ranked institutions, only 58 were represented; yet this group accounted for 35% (n = 335) in our sample.

Discussion: Author characteristics, such as gender, geographical location, and institutional affiliation, can influence the nature of knowledge syntheses and inadvertently reinforce dominant power structures. The number of authors per knowledge syntheses has grown over the last 2 decades, while concurrently, the overall percentage of female authors across all authorship positions has grown. Author positions were dominated by North American authors, with a minority of authors located in LMIC. Authors from highly ranked institutions wrote a large proportion of the knowledge syntheses in our sample.

Significance: To better understand the origins of medical education’s evidence base, we must first understand the characteristics of the authors who publish knowledge syntheses.

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Ethical approval: This research is a bibliometric analysis and does not contain any human subjects.

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References

The First 2 Years of Entrustment Decisions in the Core Entrustable Professional Activities (Core EPAs) Pilot

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Purpose: This retrospective study sought to describe (1) progress toward implementation of programmatic assessment in the Core Entrustable Professional Activities for Entering
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Residency (Core EPA) pilot and (2) changes in entrustment decision-making outcomes, between initial attempt at entrustment decision making for the graduating class of 2019 and the second entrustment decision-making cycle for the graduating class of 2020.

Approach/Methods: Four Core EPA pilot schools introduced EPAs frameworks and tested entrustment decision-making processes on a formative basis (for program evaluation purposes only) for some or all students in their 2019 and 2020 graduating classes.1–4 Schools considered the same EPAs (4–13 per school) in each year.1 For each EPA considered, a trained entrustment group (TEG) made an entrustment determination (“progression away from readiness,” “progression toward readiness,” “ready to be entrusted,” or “indeterminate” [no entrustment decision made]) for each student and recorded the number of workplace-based assessments (WBAs) available for review. With institutional review board approval or exempt determination by the Association of American Medical Colleges (AAMC) and at each participating school, individual-level data were de-identified and merged into a multischool database. We used the chi-square tests to analyze between-group differences (2-sided $P < .05$ considered significant).

Results: The 4 schools made 4,525 (2019: 2,296; 2020: 2,229) EPA-specific entrustment determinations for 732 students (2019: 349; 2020: 383). The proportion of all 4,525 entrustment determinations that were entrustment decisions (including decisions of “progression away from readiness,” “progression toward readiness,” and “ready to be entrusted”) increased ($P < .001$) from 75% (1,731/2,296) in 2019 to 90% (2,010/2,229) in 2020. These proportions varied on an EPA-specific basis from 20% to 83% in 2019 and from 62% to 99% in 2020 (data not shown), increasing from 2019 to 2020 for all EPAs (each $P < .05$, data not shown) except EPA 8 (handovers: 93/125 [74%] vs 99/127 [78%]; $P = .508$) and EPA 12 (procedures: 129/229 [56%] vs 142/228 [62%]; $P = .196$).

The proportion of all 4,525 determinations that were “ready for indirect supervision” decisions increased ($P < .001$) from 43% (997/2,296) in 2019 to 60% (1,340/2,229) in 2020. These proportions also varied on an EPA-specific basis from 0% to 75% in 2019 and 0% to 93% in 2020 and increased (each $P < .001$) from 2019 to 2020 for each of EPA 1 (history and physical: 184/349 [53%] vs 334/383 [87%]), EPA 2 (diagnostic reasoning: 41/100 [41%] vs 59/82 [72%]), EPA 3 (recommend/interpret tests: 22/100 [22%] vs 58/82 [71%]), EPA 6 (oral presentation: 210/324 [65%] vs 315/338 [93%]), and EPA 12 (104/229 [45%] vs 141/228 [62%]). Proportions remained unchanged (each $P > .05$) for EPA 4 (orders: 9/100 [9%] vs 6/82 [7%]), EPA 5 (documentation: 131/204 [64%] vs 152/224 [68%]), EPA 7 (evidence-based medicine: 164/220 [75%] vs 144/196 [73%]), EPA 8 (9/125 [7%] vs 12/127 [9%]), EPA 9 (collaboration: 120/220 [55%] vs 116/196 [59%]), EPA 10 (urgent care: 2/100 [2%] vs 3/82 [4%]), EPA 11 (informed consent: 1/100 [1%] vs 0/82 [0%]), and EPA 13 (safety: 0/125 [0%] vs 0/127 [0%]). The proportion of all 4,525 determinations for which there were ≥4 WBAs available to the TEG in making their determinations increased ($P < .001$) from 20% (452/2,295) in 2019 to 42% (938/2,229) in 2020. EPA-specific proportions varied from 0% to 76% in 2019 and 0%–91% in 2020 and increased from 2019 to 2020 for EPAs 1–3, 5–7, 9, and 12 (each $P < .001$, data not shown) but not for EPAs 4, 8, 10, 11, and 13 (each $P > .05$, data not shown).

Discussion: Proportions of determinations that were entrustment decisions, proportions of determinations that were “ready for entrustment decisions”, and proportions of learners with ≥4 WBAs all increased overall in 2020 vs 2019, and on an EPA-specific basis for EPAs 1–3 and 5. We also observed proportional increases in 2 of these 3 measures for EPAs 5, 7, 9, and 12. In contrast, determinations for EPAs 4, 8, 10, 11, and 13 remained challenging as WBAs availability did not increase and, although more entrustment decisions were made for EPAs 4, 10, 11, and 13 in 2020 vs 2019, <10% of learners were deemed ready for entrustment in each of these 4 EPAs in either year. Correspondence should be addressed to David R. Brown, drbrown@fiu.edu, Florida International University Herbert Wertheim College of Medicine, 11200 SW 8 St., AHC2 593 Miami, FL 33199; email: drbrown@fiu.edu.

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References


Antimicrobial Stewardship: A Modified Team-Based Learning Curriculum With Timeouts for the Inpatient Medicine Clerkship

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Purpose: Medical students are typically introduced to the principle of antimicrobial stewardship in their preclinical years. However, they are often