

Bruton Joe M, Cusano A, Leckie J, et al. Mentorship programs in residency: a scoping review. *J Grad Med Educ.* 2023;15(2):190-200. DOI:<http://dx.doi.org/10.4300/JGME-D-22-00415.1>

## Supplementary Data

### Search Strategy

Search of Medline (between 1940-2019) and EMBASE (Excerpta Medica Database) and between 1980 and 2019.

1. (Mentor\* or Mentee\* or protégé\*).tw,kw
2. Exp "Internship and Residency"/
3. Education, Medical, Graduate/
4. (Fellow\* or house staff or housestaff)
5. ((anaesthesiolog\* or anesthesiolog\* or emergency medic\* or family med\* or general med\* or geriatric\* or gynaec\* or gynec\* or internal med\* or neurolog\* obstetric\* or paediatric\* or pediatric\* or psychiatry\* or radiolog\* or special\* or surg\*) adj10 (trainee\* or training or residen\*)).tw,kw.
6. ((intern\* or residen\*) adj10(medical or medicine)).tw,kw
7. ((graduate or postgraduate or post-graduate) adj10 (doctor\* or medic\*)) and (educat\* or train\*).tw,kw.
8. 2 or 3 or 4 or 5 or 6 or 7
9. 1 and 8

### Data Extraction Tool

<b>Extraction</b>		<ul style="list-style-type: none"> <li>• Data extracted</li> <li>• Data extractors</li> <li>• Include article (Yes/No)</li> <li>• Date of reconciliation</li> </ul>
<b>Study demographics</b>		<ul style="list-style-type: none"> <li>• Paper Title</li> <li>• First Author</li> <li>• Year</li> <li>• Journal</li> <li>• Publication Type (abstract, original research article, letter, opinion, review, etc.)</li> <li>• Study Type (survey, interview, descriptive, cohort, RCT, etc.)</li> <li>• Country where study was conducted</li> <li>• No. of participating centers</li> <li>• Funding</li> <li>• Conflicts of interest</li> </ul>
<b>Eligibility</b>	Inclusion	<ul style="list-style-type: none"> <li>• Formal mentorship program (Yes/No)</li> <li>• Canada or US (Yes/No)</li> <li>• Resident Population (Yes/No)</li> <li>• Addresses either design, implementation, evaluation of program or any resident experience with program (Yes/No)</li> <li>• If surgical paper, mentor must do more than simply supervise in OR (Yes/No)</li> </ul>
	Exclusion	<ul style="list-style-type: none"> <li>• External program (not initiated by institution or residency program of interest)</li> <li>• Goal of program not resident centered (ie, increasing institution publication rates, trying to get residents to choose a specific specialty) Yes/No</li> <li>• Mentorship program implemented alongside other interventions AND cannot attribute outcomes to mentorship program alone (unless addresses design, implementation, evaluation or resident experience as listed above)</li> </ul>

<b>Methods</b>	Setting	<ul style="list-style-type: none"> <li>• Study start date</li> <li>• Study end date</li> <li>• Study site(specify which hospital, clinic residency program)</li> </ul>
	Population (specify if program participants do not equal participants in study)	<ul style="list-style-type: none"> <li>• Residency program(s) being mentored</li> <li>• Mentee PGY(s)</li> <li>• Additional mentee Characteristics (women, ethnic minorities, international medical grads, etc.)</li> <li>• Comparison population (if applicable)</li> <li>• Population mentor</li> <li>• Notes</li> </ul>
	Participants (in program)	<ul style="list-style-type: none"> <li>• Method of recruitment</li> <li>• Number of mentees participating</li> <li>• Number of mentees invited to participate (if optional)</li> <li>• Number of mentee drop-outs</li> <li>• Number of mentors participating</li> <li>• Number of mentors invited to participate</li> <li>• Number of mentor drop outs</li> </ul>
	Data collection	<ul style="list-style-type: none"> <li>• Means of evaluation (i.e. survey, interview, objective resident outcomes such as test scores)</li> <li>• Distribution method (if survey)</li> </ul>
	Response rates (in study)	<ul style="list-style-type: none"> <li>• Method of recruitment into study</li> <li>• Mentees (n/n)</li> <li>• Mentees (%)</li> <li>• Comparison population if applicable (n, %)</li> <li>• Mentors (n/n)</li> <li>• Mentors (%)</li> <li>• Loss to follow-up, exclusions (specify)</li> <li>• Notes</li> </ul>

	<p>Program Implementation</p>	<ul style="list-style-type: none"> <li>• Who initiated program?</li> <li>• Goal/reason behind program (ie, fulfill a requirement, QI, address burnout)</li> <li>• Basis of program design (ie, pilot program, pre-existing program, validation)</li> <li>• Support required/obtained for program (financial, administrative)</li> <li>• Steps/phases of implementation (describe)</li> <li>• Recruitment/selection of mentors</li> <li>• Integration as part of a larger program (was this a component of a larger intervention?)</li> <li>• If and how program obtained recognition (ie, mentors billing/receiving recognition for contribution, residents meeting educational requirements)</li> <li>• Barriers to implementation</li> <li>• Notes</li> </ul>
<p><b>Outcomes</b></p>	<p>Program characteristics</p>	<ul style="list-style-type: none"> <li>• Program mandatory or optional</li> <li>• Mentor assigned or chosen</li> <li>• If mentor assigned, describe methods used to match mentees with mentors</li> <li>• Mentor/mentee ratio</li> <li>• Were meetings during or after work hours?</li> <li>• If during work hours, was there protected time?</li> <li>• Site where meetings took place</li> <li>• Frequency of meetings per program goal</li> <li>• Actual frequency of meetings/attendance rates</li> <li>• Were meetings mandatory/attendance tracked</li> <li>• Does mentor receive any formal training</li> <li>• Length of program</li> <li>• How is mentoring conducted (face to face, email, phone etc.)</li> <li>• Measures to address failed mentor/mentee relationships</li> <li>• Other</li> </ul>

	Program evaluation	<ul style="list-style-type: none"> <li>• Methods used to evaluate program (instrument name, describe)</li> <li>• Pilot testing, validity of assessment tool</li> <li>• How often was evaluation sought</li> <li>• Were changes implemented after evaluation, if so what changes</li> </ul>
<b>Themes</b>	Resident wellness	<ul style="list-style-type: none"> <li>• Addressed (Yes/No)</li> <li>• Subjective (ie, a resident felt supported by mentor)</li> <li>• Objective (ie, improved burnout scores)</li> </ul>
	Career progression (ie, networking, match success, employment)	<ul style="list-style-type: none"> <li>• Addressed (Yes/No)</li> <li>• Subjective</li> <li>• Objective</li> </ul>
	Improved medical knowledge	<ul style="list-style-type: none"> <li>• Addressed (Yes/No)</li> <li>• Subjective</li> <li>• Objective</li> </ul>
	Improved understanding of values/norms/ navigating environment	<ul style="list-style-type: none"> <li>• Addressed (Yes/No)</li> <li>• Subjective</li> <li>• Objective</li> </ul>
	Research	<ul style="list-style-type: none"> <li>• Addressed (Yes/No)</li> <li>• Subjective</li> <li>• Objective</li> </ul>
	Satisfaction with residency program	<ul style="list-style-type: none"> <li>• Addressed (Yes/No)</li> <li>• Subjective</li> <li>• Objective</li> </ul>
	Success of program (include barriers to success)	<ul style="list-style-type: none"> <li>• Addressed (Yes/No)</li> <li>• Subjective</li> <li>• Objective</li> </ul>
	Other	<ul style="list-style-type: none"> <li>• Addressed (Yes/No)</li> <li>• Subjective</li> <li>• Objective</li> </ul>
	Strengths of paper	<ul style="list-style-type: none"> <li>• List all</li> </ul>

<b>Summary</b>	Limitations of paper	<ul style="list-style-type: none"> <li>List all</li> </ul>
	Summary of paper	<ul style="list-style-type: none"> <li>One to two sentences</li> </ul>
<b>Risk of bias assessment</b>	Surveys <sup>1</sup>	<ul style="list-style-type: none"> <li>Is source population representative of the population of interest?</li> <li>Is the response rate adequate?</li> <li>Little missing data?</li> <li>Is the survey clinically sensible?</li> <li>Survey was pilot tested?</li> <li>Survey was reliable and validated?</li> </ul>
	Qualitative studies (CASP) <sup>2</sup>	<ul style="list-style-type: none"> <li>Was there a clear statement of the aim of the research?</li> <li>Are the qualitative methods appropriate?</li> <li>Was the research design appropriate to address the aims of the research?</li> <li>Was the recruitment strategy appropriate?</li> <li>Was the data collected in a way that addressed the research issue?</li> <li>Has the relationship between researcher and participants been adequately considered?</li> <li>Was data analysis sufficiently rigorous?</li> <li>Is there a clear statement of findings?</li> <li>Is the research valuable?</li> </ul>
	Cohort studies <sup>3</sup>	<ul style="list-style-type: none"> <li>Was selection of exposed and non-exposed cohorts drawn from the same population?</li> <li>Can we be confident in the assessment of the exposure?</li> <li>Can we be confident that the outcome of interest was not present at the start of the study?</li> <li>Can we be confident in the assessment of the presence or absence of prognostic factors?</li> <li>Was the follow up of cohorts adequate?</li> <li>Were co-interventions similar between groups?</li> </ul>

	Case control studies <sup>4</sup>	<ul style="list-style-type: none"> <li>• Can we be confident in the assessment of exposure?</li> <li>• Can we be confident that cases had developed the outcome of interest and controls had not?</li> <li>• Were the cases (those who were exposed and developed the outcome of interest) properly selected?</li> <li>• Were cases and controls matched according to important prognostic variables or was statistical adjustment carried out for those variable?</li> </ul>
	RCTs <sup>5</sup>	<ul style="list-style-type: none"> <li>• Was the allocation sequence adequately generated?</li> <li>• Was the allocations adequately concealed?</li> <li>• Blinding: was knowledge of the allocated interventions adequately prevented?</li> <li>• Was loss to follow-up (missing outcome data) infrequent?</li> <li>• Are reports of the study free of selective outcome reporting?</li> <li>• Was the study apparently free of other problems that could put it at risk of bias?</li> </ul>

1. CLARITY. Risk of Bias Instrument for Cross-Sectional Surveys of Attitudes and Practices. <https://www.evidencepartners.com/wp-content/uploads/2017/09/Risk-of-Bias-Instrument-for-Cross-Sectional-Surveys-ofAttitudes-and-Practices.pdf>
2. CASP checklist for qualitative studies. <https://casp-uk.net/wp-content/uploads/2018/01/CASP-Qualitative-Checklist-2018.pdf>
3. CLARITY. Risk of bias instrument for cohort studies. <https://www.evidencepartners.com/resources/methodological-resources/tool-to-assess-risk-of-bias-in-cohort-studies-distillersr>.
4. CLARITY. Risk of bias instrument for case control studies. <https://www.evidencepartners.com/resources/methodological-resources/tool-to-assess-risk-of-bias-in-case-control-studies-distillersr>.
5. CLARITY. Risk of bias instrument for randomized controlled trials:. <https://www.evidencepartners.com/resources/methodological-resources/tool-to-assess-risk-of-bias-in-randomized-controlled-trials-distillersr>