



University of Colorado
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Assessment of Critical Care Experience in Undergraduate Medical Education: A Systematic Review

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Abstract

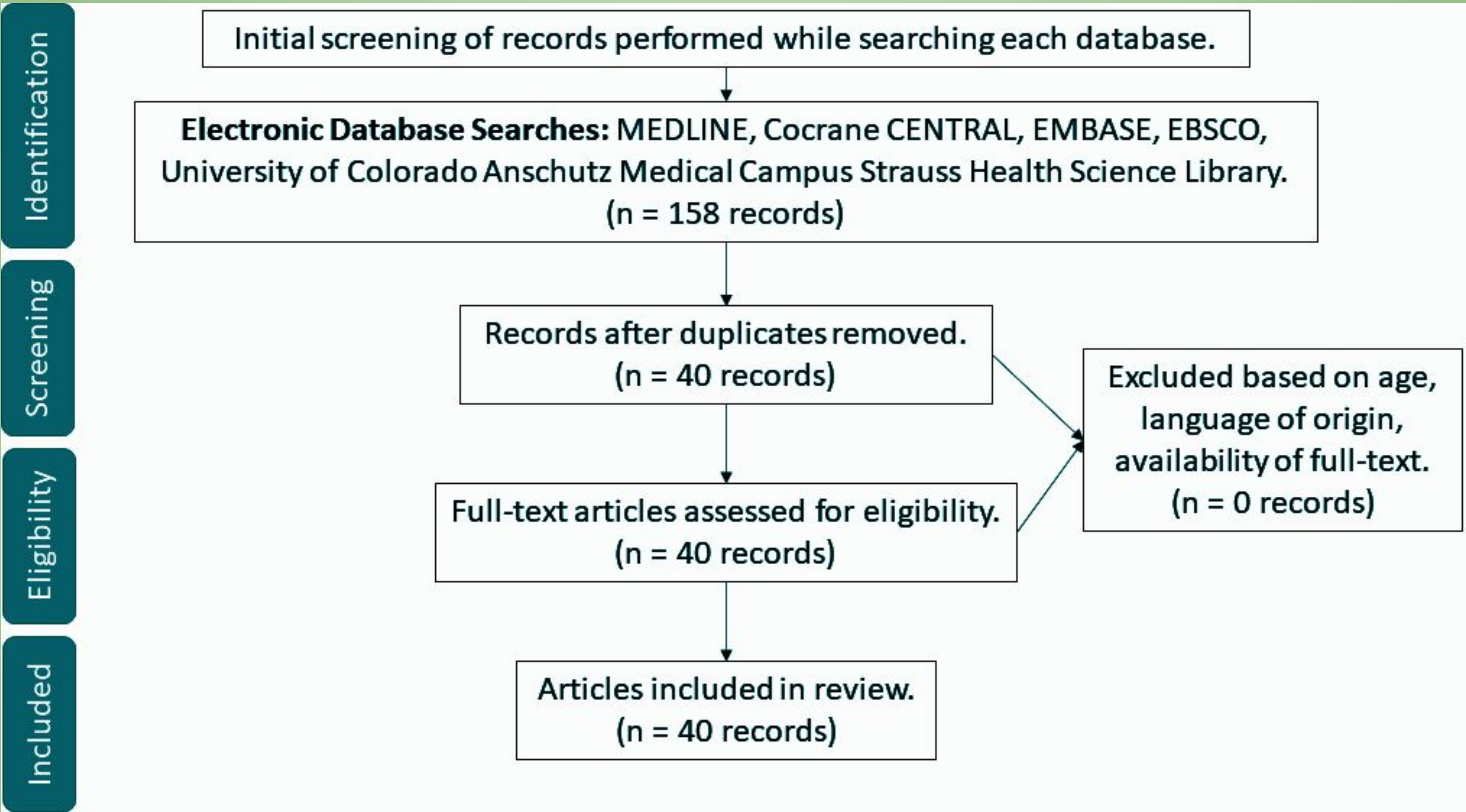
Critical care education is oft overlooked in undergraduate medical education as the curricula offered by medical schools is variable and there is no formal consensus on what courses should be included. This systematic review looks into the literature surrounding this topic, identifying what the requirements are, what schools are doing for critical care education, what is desired by experts in the field, and whether or not there is data to support performance differences at the intern or resident level as a result of the presence or absence of this coursework. There is found to be a large body of experts from a wide range of disciplines that recognize the importance of critical care education, including its ability to help learners manage unstable patients and critical conditions like STEMI, learn critical thinking skills, improve communication, and reduce the intensity of intern year and the burnout risk associated with it. In addition, there is found to be a relatively small (~40%) amount of schools that require critical care experience, and little consensus on how to implement this curriculum. There is also found to be difficulty in how to measure the impact of this and other curriculum changes, though EPAs are viewed as a promising candidate. Finally, further directions of this research are discussed including potential surveys for intern and/or resident classes from a variety of specialties and tracking of metrics like EPAs for more objective information.

Key elements of a systematic review

Structured, systematic process involving several steps :

1. Formulate the question
 2. Plan the review
 3. Comprehensive search
 4. Unbiased selection and abstraction process
 5. Critical appraisal of data
 6. Synthesis of data (may include meta-analysis)
 7. Interpretation of results
 8. Reporting the review
- All steps described explicitly in the review

Literature Search



Intern/Resident Performance as a function of Undergraduate Courses

The performance of interns and residents was looked at through a cross sectional study where, “the perception of feeling unprepared was associated with inadequate exposure to resident responsibilities while in medical school. These findings suggest that effective preparation of medical students for residency may result in lower rates of subsequent burnout.”¹⁸ Additionally, graduating medical students were found to not be confident managing unstable patients⁹, were not adequately capable of diagnosing and managing STEMI⁹, nor resuscitation¹⁰, and were not prepared for the intensity of intern year⁴. However, with simulation trainings^{11,19}, and critical care exposure^{20,21}, better performance is expected.

Conclusions

Medical education is constantly changing, and must continually be looked at with a critical eye to identify areas for improvement. Trainee exposure to critical care is an area that is not ubiquitous throughout the undergraduate medical education community, and should be improved. The fact that so many physicians, clinicians, and educators from so many different specialties have identified this need in their graduate medical education trainees is reflective of this fact and adds credibility to this idea. There are numerous ways to include strong critical care education for trainees, even in institutions without access to actual ICUs with real patients by way of web-based learning, simulations, and hi-fidelity mannequins. Measuring the impact of this change is difficult, and while EPAs are a promising solution, they have a ways to go to be truly useful. The value of this experience in learning how to think is crucial for today’s medical students and should be taken seriously.

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Contributorship

Sean Schooley is responsible for the conception and design of the study, the acquisition analysis and interpretation of the data, drafting, and revision of the manuscript, final approval of all materials and manuscript revisions, and agreement to be held accountable for all aspects of the work in all contexts.

Conflicts of Interest

This author reports no actual or potential conflicts of interest.

Regulatory Requirements

This author reports no Colorado Multiple Institutional Review Board (COMIRB) or Institutional Animal Care and Use Committee (IACUC) approval being required for this study given the lack of human or animal test subjects.

