Designing and Evaluating a Novel Online Research and Scholarship Curriculum

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Background

A central mission of Case Western Reserve University School of Medicine is to conduct research. Consequently, an in-person curriculum known as Research and Scholarship (R&S) was implemented to promote the development of foundational research skills for first and second year students.

To monitor students' attitudes of the curriculum, a survey was administered at the completion of the first year of medical school for the class of 2023.

The results of the survey are shown below (n=76):

Prior Research Experience

Preferred Method of Teaching R&S
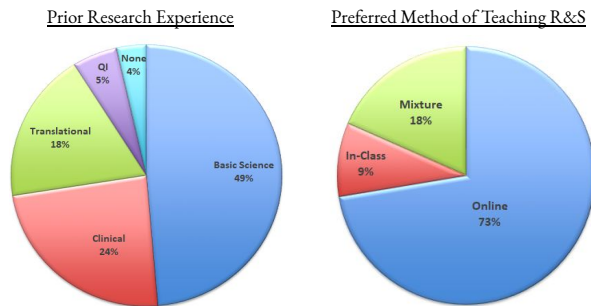
Given the preference for teaching methodology, the diversity of research backgrounds, and the onset of the pandemic, we have decided to design an online R&S curriculum with the help of faculty members and medical students.

Curriculum Overview & Evaluation

The online R&S curriculum aims to teach foundational research principles with the ultimate goal of conducting and disseminating research.

The following modules were chosen based on students' requests:

1. Statistics
2. Finding a research mentor   } Required for M1s
3. Critical appraisal of Literature
4. Submitting an Institutional review board   } Optional for all
5. Excel and REDCap
6. R-Programming
7. Using Publically Available Datasets for Research } Required for M2s

The quality of the curriculum will be evaluated by the following methods:

❑ Pre-test and post-test surveys designed as a 5-point Likert scale assessing student's confidence in achieving the curriculum learning objectives[1,3].

❑ Post-test survey assessing research involvement during M1 year to be compared to the previous cohort.

❑ Open-ended survey at the end of the course asking for strengths and weaknesses compared to the previous cohort.[2]

❑ Graduation survey results pertaining to R&S will be compared to previous cohorts.

Future Directions

The new curriculum is currently being implemented remotely and we await post-test survey results to determine efficacy of the curriculum.

We hope the transition to an self-directed curriculum with both required and optional modules will accomplish the following:

❑ Increase medical student autonomy regarding their time[1].
❑ Develop research skills that align with their academic interests.
❑ Enable students the flexibility to fill their own knowledge gaps[4].

We hypothesize this will result in more publications, and enhanced research experiences that will better equip students in becoming the next generation of academic physicians.

References

(1) Williams AA, Ntiri SO. An Online, Self-Directed Curriculum of Core Research Concepts and Skills. MedEdPORTAL. 2018;14(1): doi:10.15766/mep_2374-8265.10732. (2) Sawarynski KE, Baxa DM. Utilization of an online module bank for a research training curriculum: development, implementation, evolution, evaluation, and lessons learned. Med Educ Online. 2019 Dec;24(1):1611297. doi: 10.1080/10872981.2019.1611297. (3) McDonnell S. Applying Learning: Student Experience of Research Skills Module. Stud Health Technol Inform. 2018;256:579-583. (4) Spice R, Palacios M, Biondo PD, Hagen NA. Design and implementation of an online course on research methods in palliative care: lessons learned. J Palliat Med. 2011 Apr;14(4):413-9. doi: 10.1089/jpm.2010.0374.