

Curriculum Inventory in Context

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Translational Research in Medical School Curriculum

Translational Research has been a hot topic for many years now. The 1980s first saw the emergence of the phrase.¹ However, even in the scientific community there have been differences of opinion regarding what those terms mean. A 2010 article by individuals on the Evaluation Committee of the Association for Clinical Research Training put forth that “translational research fosters the multidirectional and multidisciplinary integration of basic research, patient-oriented research, and population-based research, with the long-term aim of improving the health of the public.”² The Liaison Committee for Medical Education (LCME) has required that all medical schools address the topic as well.

Element 7.3 states:

“The faculty of a medical school ensure that the medical curriculum includes instruction in the scientific method...and in the basic scientific and ethical principles of clinical and translational research (including the ways in which such research is conducted, evaluated, explained to patients, and applied to patient care).”

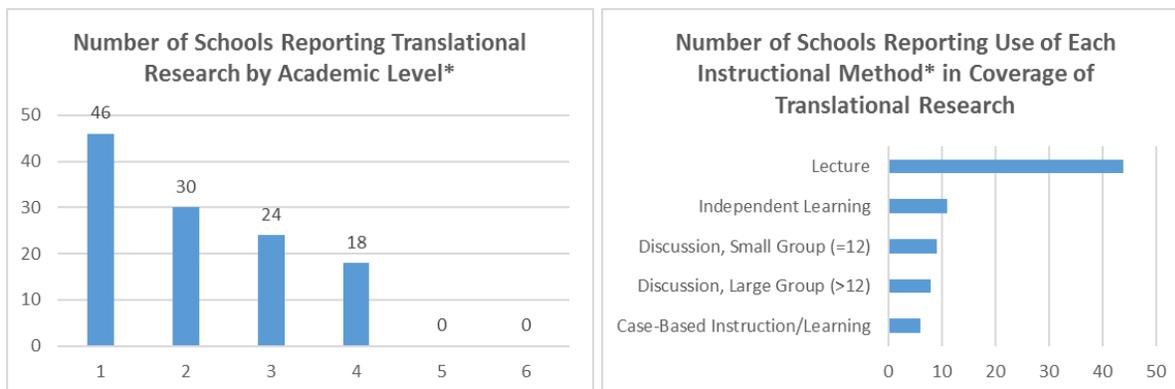
Further, the LCME calls on schools to:

“Describe the opportunities in the curriculum for medical students to learn and be assessed on the basic scientific and/or ethical principles of clinical and translational research and the methods for conducting such research. Note the required courses/clerkships in which medical students learn how such research is conducted, evaluated, explained to patients and applied to patient care, and how students’ acquisition of this knowledge is assessed.”³

A review of the literature yields little in how medical schools teach translation research; yet, we know medical students are engaging in research in ever-increasing numbers. The 2017 AAMC Graduation Questionnaire⁴ revealed that 77.3% of students participated in a research project with a faculty member, a steady increase from 66.3% in 2011. How many of these projects could be categorized as translational research is unknown. Articles by Arbuckle⁵ and Ballard⁶ describe ways to incorporate translational research into residency programs. One such program created a formal research track for their residents, allowing them to devote adequate time and resources to this pursuit. Our literature review produced only two articles related to medical students and translational research. One medical school⁷ describes a Master’s of Science in Clinical Investigation (MSCI) dual degree (MD/MSCI) program which utilizes didactics, mentoring, and hands-on research projects to teach principles of translational research. Another school describes a novel,⁸ required course in the fourth year, which teaches the subject utilizing a combination of didactics and small-group activities where students are grouped by common career interests.

At a time when medical schools are shortening the “pre-clerkship” segments of the curriculum and also allowing for more individualized pathways where research may be explored, it may be difficult for schools to decide where and how to teach this subject. When utilizing the Curriculum Inventory (CI) to

[explore where schools are teaching this](#), we find that most schools are teaching the subject during the first two years of medical school and lectures are the most common primary instructional method.



At Baylor School of Medicine we address this curricular requirement as per element 7.3 with a course focusing on translational research and population health. The initial course will be delivered to first year medical students, beginning in August 2018. The timing of this course in the curriculum is in alignment with the reported CI data. We have substantial student involvement on the development committee. The students have been central from the inception of the course; they strongly desire an opportunity to not only learn techniques but also to apply them. Along with members of the steering committee, the students have recommended that the course includes a culminating project with specific emphasis on presenting information to both patients and peers. Furthermore, the course will address the following aspects of Translational Research:

- a. *Recognize the utility of conventional and exploratory clinical trials methodologies in forming best practice guidelines*
- b. *Describe the role of large-scale data in personalized medicine*
- c. *Recognize the importance of intellectual property in health care innovation*
- d. *Apply translational research to patient care scenarios, balancing benefits and limitations*

Although the CI data reflects that the majority of reporting institutions use a lecture format as the primary method to deliver the content, we plan to use several types of active learning modalities. These include team-based learning (TBL) and case-based discussions, a journal club, gallery walks and the aforementioned final project to ensure learning and application of identified translational research topics.

At a time when a majority of students report participation in a research project, it seems critical to ensure that they have a thorough understanding of the principles of translational research, and ideally, have a chance to apply this knowledge via simulated or actual projects.

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