Teaching Collaboration in Genetic Counseling Through Interprofessional Structured Clinical Encounters

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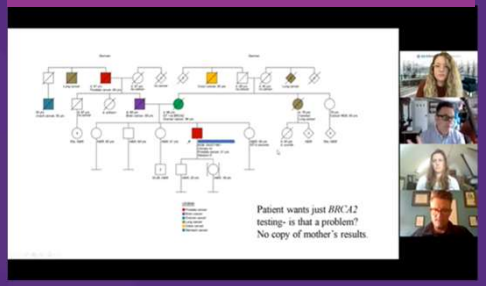
Introduction

Medical Genetics is a rapidly progressing specialty that produces vast amounts of health-related and highly relevant patient data. Collection, interpretation and communication of genetic data is very complex. The education of Clinical Genetic specialists has not kept pace with the ever-increasing demand for genetic counseling and interpretation services[1]. In practice, the genetic aspects of patient care are often divided among members of an interprofessional team of physicians, genetic counselors and clinical genetic laboratory scientists. There is a clear need to understand the demands of interprofessional collaboration in Clinical Genetics patient care and to develop innovative strategies to meet those demands beginning in Undergraduate Medical Education[2, 3].

Our study explores future Physicians' preparation and motivation for interprofessional genetic patient care by evaluating multi-disciplinary preceptor feedback of Medical Student performance in an Objective Standardized Clinical Encounter (OSCE).

The study aims to assess the potential of a Genetics Counseling OSCE for the teaching of interprofessional collaboration between primary care physicians, clinical geneticists and genetic counselors as well as the outcome of the OSCE on preclinical medical students' knowledge, skills and attitudes in the field of clinical genetics.

Fig 1: Panelists Discuss BRCA Pedigree



Methods

Intervention: Students in the preclinical phase of their medical education at DMU-COM participated in a multidisciplinary panel discussion with three genetic counselors and clinical geneticists before completing a standardized encounter with a patient seeking counseling following relative's diagnosis of familial breast cancer.

Outcomes: Interprofessional learning aspects of the intervention were evaluated with individual structured interviews conducted via Zoom teleconference. Panelists and preceptors answered 9 question on students' understanding of the interprofessional nature of modern clinical genetics patient care and the educational value of the OSCE. Responses were recorded and quantified with a 5-point scale.

Student learning outcomes were assessed with a one-arm, pre-post intervention study assessing motivation, attitudes and genetic knowledge. Student responses were analyzed for significant differences pre-post intervention with a Mann-Whitney U test.

Results

Five genetics professionals participated in the post-OSCE survey of panelists and evaluators.

Participants agreed that first-year Medical Students did not have a clear understanding of the scope of practice of different genetics professionals and strongly agreed with the statement that the employed standardized clinical encounter is a good format to teach these interprofessional aspects of clinical genetics. Fourteen students participated in the pre-post survey of genetics attitudes, skills and knowledge. Only the "interest in clinical genetics" domain of the survey responses showed significant improvement; genetic knowledge and skill domains were not affected.

We conclude that the Panel Discussion/OSCE format is well-suited for teaching interprofessional aspects of collaboration between clinical genetics professionals to undergraduate medical students.

Table 1: Sample of Thematic Survey Questions and Data Results

Question	Evaluation Category	Average Score	Sample Comments
Was the case scenario realistic?	Technical Aspects	4.4	"Thought it was pretty realistic."
Was the technical execution of the OSCE adequate, and did we communicate the expectations for your participation appropriately?	Technical Aspects	3.2	"Limit presentations to 7-10 minutes with question times."
Do you have an idea for a new case?	Technical Aspects	3.8	"A patient with direct to consumer testing results and getting something unusual back."
Were the students appropriately prepared for the case?	Educational Aspects	2.6	"Students were prepared for the level of training they had. Students underestimated themselves."
What aspect of student performance was weakest, and how can it be addressed in the curriculum?	Educational Aspects	2	"Have students explain to patients as they draw the pedigree."
Did we enroll the appropriate student cohort?	Educational Aspects	3.2	"Yes, instill early on these sorts of basics for 21st century medical practice."
Did students understand the scope of practice of clinical geneticists, genetic counselors, and genetic laboratories?	Interprofessional Aspects	2	"Does not think that the students had a clear idea, is true for all types of practice at this stage."
As a panelist or evaluator, were you able to communicate your role in the team to each other and to the students?	Interprofessional Aspects	3.8	"Explaining in depth takes time, but the involvement of another counselor helped."
Was this a good opportunity to practice interprofessional education?	Interprofessional Aspects	5	"Yes, any opportunity to work with medical students or physicians to offer context for genetics work in medicine is a great opportunity."

Conclusion

This pilot-study demonstrates the feasibility of providing preclinical medical students practical experience with genetic medicine and counseling. The small sample size of this pilot study makes it difficult to ascertain the full student benefits of the genetics OSCE but, encouraging trends in student interest and perceived importance of genetics warrant further study. The lack of a control group in this study is an area of immediate interest, and the team is planning to add a control arm with further integration of genetic counseling simulation into the biochemistry curriculum.

As noted earlier, the availability of genetic counselors and medical geneticists in Iowa is very limited. An added benefit of the telemedicine format was the relative ease of connecting students with genetic clinicians at other institutions. This interprofessional exposure introduced students to the instrumental role these genetic experts play in patient care, and how best to utilize this increasingly important aspect of medicine.

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