

## Developing a series of modules to introduce medical students to whole genome sequencing (WGS)

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**Needs and Objective.** Use of whole genome sequencing (WGS) is anticipated to transform diagnostic testing and disease etiology research in the post-genomic personalized medicine era (1, 2). However, unlike present clinical genetic testing, which identifies known variants of specific diseases, WGS provides clinicians with genome-wide variants (1). Determining the relevance of these variants requires that physicians critically analyze such data to make informed medical decisions (3). Hopkins medical students receive basic genetics training, but are largely untrained in genomics level analysis necessary to understand variants identified by WGS.

**Proposal.** In collaboration with Institute of Genetic Medicine and Department of Epidemiology (JHSPH) faculty, we will develop a series of modules to introduce medical students to WGS technologies and bioinformatics analysis of variants to improve understanding of these variants in a clinical context. We will also engage students in assessing clinical case studies of WGS use and discuss ethical, legal, and social implications (ELSI) of WGS use (1). We plan to supplement in-person instruction with Internet-based curricular materials including WGS case studies (4). We will develop and utilize a concept inventory to measure students' understanding of these WGS topics (5).

**Expected Outcomes.** These modules can be deployed in formal classroom settings, short workshops, or informal seminar series. By training medical students in the practice and applications of WGS, we anticipate that we will contribute to training the next generation of medical practitioners to make informed decisions about using WGS in clinical practice and medical research.

## References

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