

Graduate Medical Trainee Perspectives on Personalized Medicine

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Background: The use of genomics in clinical care both to prevent and treat disease is quickly growing. However, previous research has shown that practicing clinicians have low levels of knowledge related to genetic testing and feel underprepared to integrate personalized medicine (PM) into clinical care. Although previous research has demonstrated a gap in knowledge among practicing healthcare providers, there has been a lack of focus on the educational needs of graduate medical trainees (GMTs). As physician residents and fellows prepare for their careers, this time in training offers a unique opportunity to introduce the concepts of PM and improve a growing gap in knowledge among practicing clinicians.

Objective: To evaluate the knowledge, skills and attitudes local GMTs have toward PM, including disease genetics and pharmacogenetics. Results of this assessment will subsequently be used to develop educational tools for GMTs and practicing clinicians.

Methods: An anonymous, 47-item web-based survey was administered from December 2019 to January 2020 to all GMTs, including intern, resident and fellow physicians participating in training programs affiliated with the University of Colorado. We calculated descriptive statistics for survey responses and used Chi square tests to compare responses between GMTs who reported vs did not report receiving PM education.

Results: Of the 1,190 residents and fellows contacted, 319 GMTs (26.8%) returned questionnaires that met criteria for inclusion in the study sample. The respondents consisted of 75.6% residents, 59.7% women and 76.2% non-Hispanic whites. Most of the cohort (73.7%) reported receiving PM education in medical and/or graduate school, while 49.5% reported receiving PM education in residency and/or fellowship (R/F). Two thirds of respondents did not feel sufficiently informed about PM and 40.3% reported being unaware of any resources available to clinicians to integrate PM into clinical care. Only 23.8% of respondents felt confident in their ability to interpret a pharmacogenetic test result. However, those who reported receiving PM education in R/F were significantly more likely to report confidence in their knowledge of and ability to perform skills related to PM compared to those who did not report receiving PM education in R/F ($p < 0.0001$).

Discussion: Although most GMTs in this cohort reported prior PM education, they did not feel sufficiently informed about PM and lacked confidence in their ability to interpret and explain genetic test results. Our survey shows that these educational gaps can be improved through targeted PM education, as those who reported receiving PM training in R/F were more likely to report confidence in their knowledge of PM and ability to utilize PM compared to those who had not received this training. Thus, curricula developed specifically for GMTs affords the possibility to equip the next generation of clinicians with the confidence and the skills needed to promote the integration of PM into routine clinical care.

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