Effect of Live Education Targeted to Genetic Counselors on Knowledge and Competence

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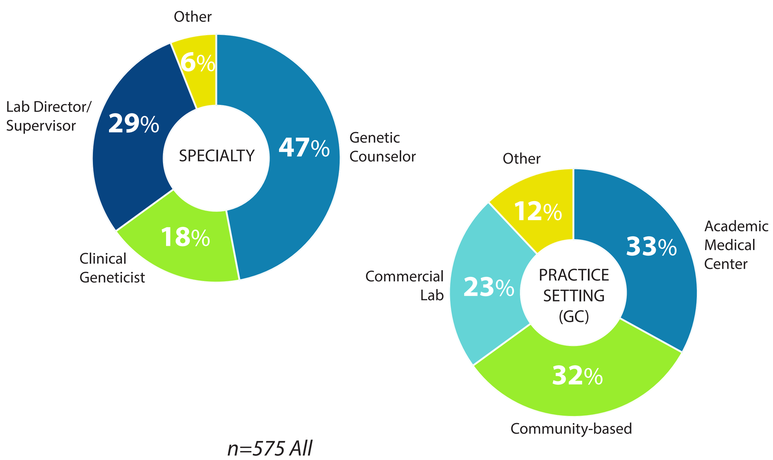
BACKGROUND

Rapid advancements in genomics and sequencing technologies have presented a growing need for experts in the field of genetics to translate results and optimize patient care. As knowledge regarding DNA mutations and the technology to properly detect them continuously advances, genetic counselors will play a larger role in the oncology healthcare team. We evaluated the effect of live education on knowledge and competence in genetic counselors attending two live dinner symposia presented at the 2018 and 2019 American College of Medical Genetics & Genomics Annual Meeting. These educational activities were designed to target genetic counselors, clinical geneticists, laboratory supervisors, and physicians involved in the diagnosis, management, and genetic counseling of patients who have or are at risk for DDR-mutated cancers attending these symposia.

LEARNER BREAKDOWN



n=575 All
n=127 Genetic Counselors (GC)

METHODS

- Learning and knowledge was objectively assessed by analyzing pre- and post-test results before and after the educational activities (n=49). Competence was assessed via post-activity evaluation where participants were asked to identify specific changes they intended to incorporate into practice, as well as any anticipated barriers that would hinder them from making such changes (n=127).
- To determine retention of knowledge over time, follow-up assessments were sent to participants 4-6 weeks after each live activity. Assessment questions in the form of case studies were utilized to gauge whether participants translated knowledge into practice at follow-up. The follow-up assessments also included questions regarding actual changes made and actual barriers experienced in practice (n=39).
- Statistical testing between pre- and post-test and from pre-test to follow-up were conducted via chi square analysis with *a priori* significance set at .05.

- Genetic counselor education at live symposia is an effective modality to increase knowledge and competence.
- The changes genetic counselors made in practice were well aligned with their perceived knowledge and comfort level for a particular topic.
  - Top intended practice changes were to educate colleagues regarding when it is appropriate to refer patients for germline testing based on somatic testing results and to be more knowledgeable in interpreting somatic testing.
  - The top change made in practice at follow-up was ***to be more knowledgeable in the interpretation of somatic genetic testing results and assessing when germline testing is needed (38%)***; From pre-test to follow-up, there was a 27% improvement in genetic counselors' ***ability to identify patients who should undergo germline testing based on patient and tumor characteristics***. This improvement was statistically significant and demonstrates sustained knowledge for this topic.
  - Only 8% of genetic counselors made the practice change of ***educating colleagues regarding the selection of patients who would benefit from a PARP inhibitor or clinical trial based on genetic results***. Interestingly, there was no improvement from pre-test to follow-up in genetic counselor ability to identify patients who would benefit from the use of a PARP inhibitor based on genetic testing results.
- Further instruction is needed to educate genetic counselors about how genetic results can shape treatment decisions, including enrollment in clinical trials.
- At follow-up, lack of time was the top barrier that 40% of genetic counselors said they experienced in practice. Given the shortage of genetic counselors at this time, it is vital for other members of the oncology care team to increase their fluency in cancer genetics, and for genetic counselors to share their expertise and be actively involved in the oncology care team.

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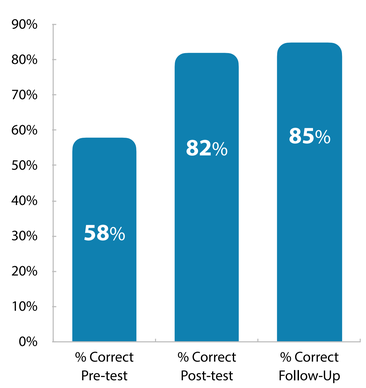
RESULTS/GRAPHS/DATA

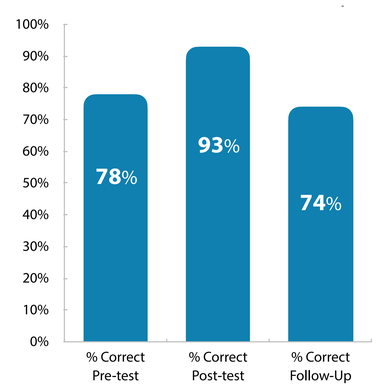
- Attendee improvements in learning and knowledge, as determined by significant ($P<.05$) increases in correct responses, were observed in several specific topic areas from pre- to post-test and in one topic area from pre-test to follow-up:
- **Pre-test vs. Post-test Assessment**
  - When to consider germline testing based on individual patient and tumor characteristics (58% pre-test vs. 82% post-test; $P=.01$).
  - Identification of patients most likely to benefit from a PARP inhibitor based on genetic testing results (78% pre-test vs. 93% post-test; $P=.04$).
- **Pre-test vs. Follow-up Assessment**
  - Participants demonstrated a statistically significant improvement from pre-test to follow-up in their ability to correctly identify patients who should receive germline testing based on tumor genetic test results (58% pre-test vs. 85% follow-up; $P=.008$).
  - While there was an improvement in knowledge pertaining to the identification of patients most likely to benefit from a PARP inhibitor immediately following the activity, it was not sustained at follow-up (78% pre-test vs. 74% follow-up; $P=.14$). However, it is important to note that the baseline knowledge for this topic was relatively high.

PRE-TEST VS. POST-TEST VS. FOLLOW-UP

Participant ability to know when it is appropriate to consider germline testing based on individual patient and tumor characteristics, as well as current NCCN Guidelines (at the time of the presentation).



Participant ability to recognize patients that would derive benefit from PARP inhibitor use based on genetic testing results.



CONCLUSIONS

This analysis shows that live accredited education can significantly improve the knowledge and competence of genetic counselors. Results also suggest that ongoing education in clinically appropriate scenarios is warranted.