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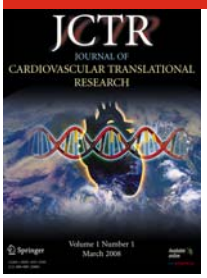
Innovation, Translation, Education



This feature section of JCTR will appear in every issue and include Guest editorials, new listings of biotech companies, and "primers" highlighting new information. We welcome your suggestions.

Spotlight on Genetic Counseling and Professional Preparation at the Graduate Program at the University of Minnesota

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Genetic counseling is the process of helping people understand and adapt to the medical, psychological, and familial implications of genetic contributions to disease. This process integrates:

- *Interpretation of family and medical histories to assess the chance of disease occurrence or recurrence*
- *Education about inheritance, testing, management, prevention, resources, and research*
- *Counseling to promote informed choices and adaptation to the risk or condition* [2]

The University of Minnesota is home to one of the very first genetic counseling centers in the US. Dr. Sheldon Reed, a research geneticist, initiated a service in the 1940s where he helped clients and their families understand their genetic risk of developing a disease or having a baby with a disorder. He wrote the first book on genetic counseling and he was the first to acknowledge the tremendous impact that genetic information has on major life decisions. In 1947, Reed coined the term "genetic counseling" and, with that, the seeds of new profession were sowed [1].

The profession has grown and evolved tremendously and, 42 years later, the Graduate Program of Study in Genetic Counseling at the University of Minnesota was launched. In 1989, we accepted our first students and, since that time, we have graduated over 100 genetic counseling professionals. Our graduates are working in all areas of health care in a variety of settings both nationally and internationally.

Genetic counseling is now a fully established health care profession. Student preparation involves graduate work at the master's degree level that blends course work in molecular biology, human genetics, behavioral genetics, and physiology with psychosocial counseling and genetic counseling techniques. These content areas are applied to direct clinical work under the supervision of board-certified genetic counselors. Students also gain teaching and research experience during their training. Upon graduation, students are eligible to apply for national certification through the American Board of Genetic Counseling. The program of study is quite rigorous and graduates emerge highly trained and well prepared to practice in the world of genetics and medicine. Our program is one of the 32 accredited programs in North America.

The profession of genetic counseling is rapidly growing along with the advances in genetic knowledge and the application of this knowledge to medicine. Genetic counselors have traditionally worked in perinatal and pediatric settings, but more recently genetic counselors are expanding their services to oncology, nephrology, ophthalmology, neurology and cardiology, and a growing number of other specialty areas. We now have a better understanding of the role that genetics plays in many diseases and, increasingly, we better understand the genetic risk to individuals and their family members. Genetic counselors also work in clinical research settings, helping researchers recruit and educate research participants in studies designed to uncover the genetic cause of disease. Because it is clear that genetics plays a role in virtually all diseases, the opportunities for genetic counselors to work with clinicians and researchers are ever expanding.

Cardiology comprises one of the many areas where a growing number of genetic counselors are working with clinicians and researchers. Genetics plays a major role in most heart disease, and therefore genetic counseling is relevant to both clinical practice and research. Genetic counselors help patients with heart disease understand the genetic contributions to their disease, their personal risks as well as those of their family members, and they also help patients and families connect with appropriate research studies and supportive services. Moreover, genetic counse-

lors often facilitate the identification of patients and families most at risk for heart disease and help those individuals understand genetic testing as well as the related benefits of these tests. Genetic counselors are positioned to help translate genetic test results and research findings to patients, and as such they are a valued part of clinical and research teams in the cardiac setting.

References

1. Reed, S. (1980). *Counseling in medical genetics* (3rd ed.). New York: Alan R. Liss.
2. Resta, R., Bowles Biesecker, B., Bennett, R. L., Blum, S., Estabrooks Hahn, S., Strecker, M. N., et al. (2006). A new definition of genetic counseling: national society of genetic counselors' task force report. *Journal of Genetic Counseling*, *15*(2), 77–83.