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Inhibition of monocyte-like cell extravasation protects from neurodegeneration in DBA/2J glaucoma.

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Three things every nurse practitioner can do to integrate genetics into practice

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ABSTRACT

Genetic and genomic information has the potential to improve patient care and outcomes by improving clinicians' ability to identify patients at increased risk of disease and, in some cases, personalize treatment and management. However, many clinicians report that they feel unprepared and lack confidence in talking about genomics with their patients. By focusing on family history information and knowing when and how to refer to genetic experts, clinicians can take meaningful steps to improve integration of genetics into patient care.

Keywords: Family history; genetic counseling; genetic testing.

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Julia is a medical actor helping train the next generation of health care providers. She is also a real patient with a high familial risk of Lynch Syndrome, a hereditary colorectal cancer syndrome. But that is not her only problem; her health care professional did not know enough about this genetic disorder to spot the red flags in her family history. How did she discover her risk? Coincidently, she just happened to be portraying a patient with a similar familial risk as part of her job. Through talking with the course faculty, Julia discovered that her own family history was suspicious for hereditary colorectal cancer and was empowered to contact her family members for more information. This ultimately led to an appointment with a cancer genetic counselor for further evaluation, but this would not have happened without Julia educating herself about the risks in the family.

Julia's clinician's lack of genomic knowledge is not unique. Although more nurses may be exposed to genetics and genomics during training due in large part to the development of essential genetic/genomic competencies (Consensus Panel on Genetic and Genomic Nursing Competencies, 2006), it can be challenging to find clinically relevant resources and keep up with the rapidly changing evidence base. Many advanced practice nurses and health care professionals report that they feel unprepared and lack confidence in talking about genomics with their patients. To complicate matters, health care professionals are faced with a crowded landscape of competing health care demands such as continually changing screening guidelines and, up until recently, genomics lacked the evidence necessary to make it useful in the clinic. But advances in personalized medicine have increased the number of tests that have clinically actionable results.

The following are the three steps all health care professionals can take to incorporate genomic medicine into patient care:

1. Take an accurate three-generation family history and keep it up to date. Intake forms rarely provide enough information to accurately determine risk. There are many different approaches to collecting family history information. Recording information in a pedigree can help you visualize disease patterns more easily, which is one reason why genetics experts prefer them. Several family pedigree collection tools have been developed to help you or your patient collect and update their family health history. One is the Center for Disease Control and Prevention My Family Health Portrait tool available at (https://phgkb.cdc.gov/FHH/html/index.html). JAX has collected this and other available resources on the Family History Collection and Risk Assessment page available at (https://bit.ly/2RxYwfu).
2. Recognize the patterns and red flags in the family history that put your patients at increased and high risk of disease including the following:

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- Family history of multiple affected family members with the same related disorders
- Earlier age at onset of the disease than expected
- Condition in the less-often-affected gender (e.g., breast cancer in a male and autism in a female)
- Disease in the absence of known risk factors (e.g., lung cancer in a nonsmoker)
- Ethnic predisposition to certain genetic disorders (e.g. breast cancer in the Ashkenazi Jewish population)

Learn more about red flags, inheritance patterns, or using family history for risk assessment. Consider consulting with a genetic expert when you have questions about the red flags in the family, or for further assessment. Resources to support the assessment of a Family Health History can be found on the JAX Family History Collection and Risk Assessment page (https://bit.ly/2RxYwfu) and from organizations such as the American Academy of Pediatrics (https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/genetics-in-primary-care/Genetics-in-Your-Practice/Pages/Genetic-Red-Flag.aspx).

3. Facilitate the genetic counseling process. Genetic counseling integrates risk assessment, education, and counseling. In some cases, it includes the offer of genetic testing, decision-making support, and interpretation of results. You should be able to prepare high-risk patients and families for what to expect, communicate relevant information to the genetics team, and follow-up with the patient after genetic services have been provided. Those health professionals who choose to provide genetic counseling services to their clients should be able to perform the following skills:

- Collect a detailed medical and family history
- Provide risk assessment and risk counseling
- Address psychosocial issues and emotional concerns
- Direct an in-depth consent process for genetic testing, when applicable
- Disclose results of genetic testing, when applicable
- Determine and communicate screening and management plans
- Summarize and plan for follow-up

Find resources about genetic counseling, communication, and where to find a genetic expert to whom to refer on the Family History Collection and Risk Assessment page from JAX (https://bit.ly/2RxYwfu).

For more education about genomics for health professionals, the following are some quality resources:

- Clinical and continuing education at The Jackson Laboratory (JAX) (www.jax.org/ccep) provides resources and short online courses that are interactive and case based. GRACE by JAX (www.jax.org/grace) helps primary care providers with cancer genetic risk assessment, testing, and management. Precision Medicine for Your Practice (www.jax.org/cepm) provides the opportunity to practice applying genomic medicine using cases in different areas of medicine.
- G2C2 (http://g-2-c-2.org/) is a peer-reviewed competency-based resource clearing house.
- Genomics Education Programme for Health Education England (https://www.genomicseducation.hee.nhs.uk/) includes resources and online education for all health care providers.
- GEC-KO (http://geneticseducation.ca/) provides evidence-based resources and online education for all health care providers.
- Genetic Science Learning Center at the University of Utah (https://learn.genetics.utah.edu/content/disorders/) provides resources for a general audience that cover fundamental concepts of genetics related to health.

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Reference

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