2017 | ACMG Annual Clinical Genetics Meeting

ACMG American College of Medical Genetics and Genomics
Translating Genes Into Health®

Multi-Gene Testing for Inherited Cancer Predisposition: Opportunities and Challenges

Held in Phoenix, Arizona, March 21-25, 2017

Date of Release: April 3, 2017
Expiration Date: April 3, 2020 (CME, NSGC, P.A.C.E.®)
Estimate Time of Completion: 2 hours
Course must be completed by the expiration dates

COURSE DESCRIPTION

Advances in sequencing technology with plummeting costs have led to a paradigm shift for inherited cancer predisposition testing, with increasing use of multi-gene panels. While panels enable simultaneous testing of multiple genes, they also may lead to testing of moderate and uncertain risk genes, identification of mutations in genes discordant with the clinical phenotype, as well as a much higher rate of variants of uncertain significance (VUS) as more genes are tested. Speakers will discuss risk assessment and management implications for many of the newer genes on these multigene panels, as well as the handling of VUS and uninformative results identified, expansion of classic clinical phenotypes, and the incorporation of tumor sequencing to identify potential germline risk and guide testing and management. Additionally, given the changes in approach to testing with the availability of next-generation sequencing technologies, the cost-effectiveness of this approach will be discussed in the context of inherited cancer risk.

Dr. Tuya Pal (Risk Assessment and Management for Inherited Cancers: Beyond the Usual Suspects) declined to release her slides but you will be able to listen to her presentation.

LEARNING OBJECTIVES

At the conclusion of this course, participants should be able to:

- Describe risk assessment and management approaches based on various types of genetic test results
- Contrast how cost effectiveness is impacted by multi-gene testing as compared to traditional testing approaches
- Describe the potential clinical significance of tumor testing to inform potential germline risk
- Describe the approach to management of patients with pathogenic variants in newly identified genes conferring high or moderate increased cancer risk, as well as VUS and uninformative results

TARGET AUDIENCE

All healthcare professionals interested in the diagnosis, management, treatment and prevention of genetic conditions and increasing their understanding of the genetic basis of common, chronic health problems affecting both children and adults will find the programming applicable to their practice. These select sessions from the ACMG Annual Meeting are targeted for the following professionals:

- Medical and clinical geneticists
- Physicians of all specialties with an interest in genetics, genomics and the genetic basis of disease
- Genetic counselors
- Laboratory geneticists, directors, technicians and technologists
- Researchers
- Pathologists
- Educators
- Nurses
- Dietitians
- Physician assistants
- Biotechnology and pharmaceutical development professionals
- Fellows, Trainees and Students
- Public health professionals
- Genetic/consumer advocates
- Others with an interest in the science and art of medical genetics and genomics

SESSIONS

- Risk Assessment and Management for Inherited Cancers: Beyond the Usual Suspects- Tuya Pal, MD, FACMG
- Expansion of Clinical Phenotypes for Inherited Cancer Predisposition in the Era of Multi-gene Testing- Jeffrey Weitzel, MD
- Handling Variants and Uninformative Results in the Era of Multi-gene Testing-Georgia Wiesner, MD, FACMG
- The Relevance of Tumor Sequencing to Identify Potential Germline Risk and Guide Testing and Management- Michael Hall, MD, MS
- Cost-effectiveness of Multi-gene Testing for Inherited Cancer Predisposition- Carlos Gallego, MD, MS

Accreditation:

The American College of Medical Genetics and Genomics is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

Credit Designation:

The American College of Medical Genetics and Genomics designates this activity for a maximum of 2 *AMA PRA Category 1 Credit*s™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Genetic Counselor Credit

The National Society of Genetic Counselors (NSGC) has authorized American College of Medical Genetics and Genomics to offer up to 2 Category 1 contact hours for this OnDemand course. The American Board of Genetic Counseling (ABGC) will accept CEUs earned for this course for the purposes of genetic counselor certification and recertification. Reporting of credits is sent to NSGC quarterly. Additional fee (~$25) applies for NSGC credit that is billed by NSGC.

P.A.C.E. CEUs – Laboratory Directors and Laboratory Personnel

ACMG is approved as a provider of continuing education programs in the clinical laboratory sciences by the American Society for Clinical Laboratory Science (ASCLS) Professional Acknowledgment for Continuing Education (P.A.C.E.®) Program. The American College of Medical Genetics and Genomics designates this course for a maximum of 2 contact hours. ACMG is approved by the Florida Board of Clinical Laboratory Personnel as CE Provider. ACMG is approved by the California Department of Health Services through the ASCLS P.A.C.E.® Program as CE Provider #275.

HIPAA Compliance

The ACMG supports medical information privacy. While the ACMG is not a "covered entity" under HIPAA 1996 and therefore is not required to meet these standards, ACMG wishes to take reasonable steps to ensure that the presentation of individually identifiable health information at ACMG-sponsored events has been properly authorized. All presenters have completed a form indicating whether they intend to present any form of individually identifiable healthcare information. If so, they were asked either to attest that a HIPAA-compliant consent form is on file at their institution, or to send ACMG a copy of the ACMG HIPAA compliance form. This information is on record at the ACMG Administrative Office and will be made available on request.

Content Validation

ACMG follows the ACCME policy on Content Validation for CME activities, which requires:

Content Validation and Fair Balance

1. ACMG follows the ACCME policy on Content Validation for CME activities, which requires:
   a) All recommendations involving clinical medicine must be based on evidence that is accepted within the profession of medicine as adequate justification for their indications and contraindications in the care of patients.
   b) All scientific research referred to, reported or used in CME in support or justification of patient care recommendations must conform to the generally accepted standards of experimental design, data collection and analysis.

2. Activities that fall outside the definition of CME/CE; "Educational activities that serve to maintain, develop, or increase the knowledge, skills, and professional performance and relationships that a physician uses to provide services for patients, the public, or the profession" (source: ACCME and AMA) will not be certified for credit. CME activities that promote recommendations, treatment, or manners of practicing medicine or pharmacy that are not within the definition of CME/CE or, are known to have risks or dangers that outweigh the benefits or, are known to be ineffective in the treatment of patients.
3. Presentations and CME/CE activity materials must give a balanced view of therapeutic options; use of generic names will contribute to this impartiality. If the CME/CE educational materials or content includes trade names, where available, trade names from several companies must be used.

Off-label Uses of Products

When an off-label use of a product, or an investigational use not yet approved for any purpose, is discussed during an educational activity, the accredited sponsor shall require the speaker to disclose that the product is not labeled for the use under discussion, or that the product is still investigational. Discussions of such uses shall focus on those uses that have been subject of objective investigation.

Disclaimer: *ACMG educational programs are designed primarily as an educational tool for health care providers who wish to increase their understanding of the application of genomic technologies to patient care. The ACMG does not endorse, or recommend the use of this educational program to make patient diagnoses, particular by individuals not*

trained in medical genetics. Adherence to the information provided in these programs does not necessarily ensure a successful diagnostic outcome. The program should not be considered inclusive of all proper procedures and tests or exclusive of other procedures and tests that are reasonably directed at obtaining the same results. In determining the propriety of any specific procedure or test, a healthcare provider should apply his or her own professional judgment to the specific clinical circumstances presented by the individual patient or specimen.

2017 ACMG Program and Education Committee Members Disclosures

Members of the ACMG Staff, Education and Program Committees involved in planning the 2017 ACMG Annual Clinical Genetics Meeting are required to disclose relevant relationships which could be perceived by some as a real or apparent conflict of interest in planning. All disclosures have been reviewed and conflicts of interest resolved by the Education Committee COI sub-committee or the Executive Director and CME Associate Director and conflicts of interest are disclosed. In the cases where a conflict existed then the committee member refrained from the discussion.

Following is a list of program and education committee members who have disclosed one or more such relationships and names of companies with which those relationships exist:

EC = Education Committee; PC = Program Committee; S = ACMG Staff

1. Major stockholder/ownership interest 2. Grant/Research Support (External) 3. Salary/Employment/Royalty(ies)/Honoraria 4. Consultant/consulting fees/other remuneration 5. Speakers' bureau	6. Non-remunerative positions of influence such as officer, board member, trustee, or public spokesperson (All Committee Members Below are on ACMG Committees –Members with other affiliations are listed) 7. Receipt of intellectual property 8. Other

Georgianne L. Arnold, MD, FACMG - Horizon, 2; Recordati, 2; Biomarin, 2; Actelion, 2; SIMD, 6; ACGME, 6; AAP, 6; ASHG, 6 (PC)
Karen W. Gripp, MD, FACMG – Wiley Publishing Inc., 3; FDNA, 4; Novartis, 4 (PC)
Fuki M. Hisama, MD, FACMG – Horizon Pharmaceuticals, 4; ABMGG, 6 (PC)
Christine A. Curtis, PhD, FACMG - CSI Laboratories, 3 (EC)
Thomas E. Mullen, PhD, MS, FACMG - Good Start Genetics Inc., 3 (EC)
Christian P. Schaaf, MD, PhD, FACMG - Springer Publishing Company, 3 (PC), (EC)
Katrina M. Dipple, MD, PhD, FACMG – ACGME, 6; AAP, 6; ASHG, 6; LA BioMed DSMB, 4; SIMD 6 (PC)

Following is a list of committee, education members and staff who have no relationships to disclose:

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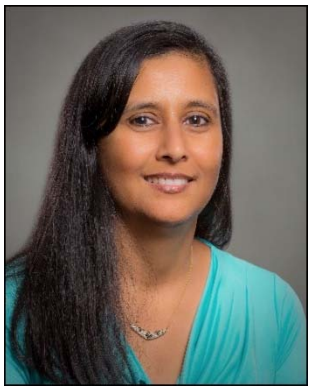
SPEAKERS AND MODERATORS

Faculty Disclosures:

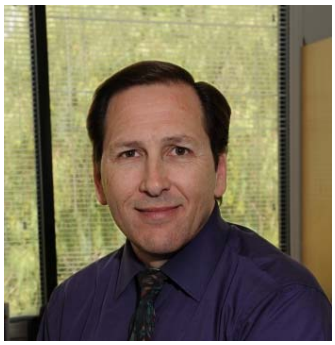
As a sponsor accredited by the ACCME, the American College of Medical Genetics and Genomics must ensure balance, independence, objectivity and scientific rigor in all its sponsored educational activities. All faculty participating in a CME-certified activity are expected to disclose to the audience any relevant financial interest(s) or other relationship(s) with the manufacturer(s) of any commercial product(s), provider(s) of commercial services or any commercial supporters, including diagnostic laboratories, of the activity discussed in an educational presentation. Relevant financial interest(s) or other relationship(s) can include such things as grants or research support, consultancy, major stock holder, etc. The intent of this disclosure is not to prevent a planner or speaker with a relevant financial or other relationship from course planning or making a presentation, but rather to provide learners with information on which they can make their own judgments. It remains for the audience to determine whether the speaker's interests or relationships may influence the presentation with regard to exposition or conclusion. All conflicts of interests have been reviewed and resolved by the education and CME subcommittee.

Moderator/Speaker: Tuya Pal, MD, FACMG
Moffitt Cancer Center
No financial relationships to disclose.



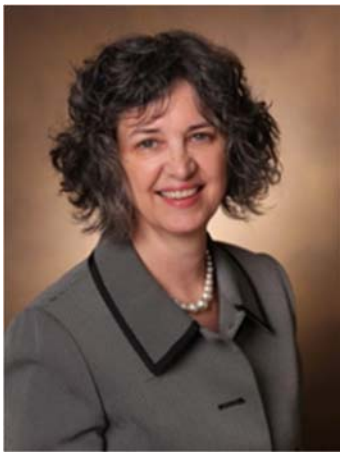
Dr. Tuya Pal is a Clinical Geneticist who joined Moffitt in 2002, and has focused her clinical efforts on evaluating patients for inherited cancer risk. For the last several years, she has been a member of the NCCN Genetic/Familial High Risk Assessment for breast and ovarian cancer as well as the NCI PDQ Cancer Genetics editorial board. Her research efforts have spanned the cancer prevention and control continuum, inclusive of minority and underserved populations. She has also led studies to better understand delivery of genetic services, including those related to identification, access, and quality of care. She has also focused on outreach and educational efforts through partnering with community practitioners to evaluate cancer risk management practices at both the patient and provider level.

Speaker: Jeffrey Weitzel, MD
City of Hope Comprehensive Cancer Center
No financial relationships to disclose.



Jeffrey N. Weitzel, MD is Chief of the Division of Clinical Cancer Genomics and the Cancer Screening & Prevention Program at the City of Hope Comprehensive Cancer Center in Duarte, California. Dr. Weitzel is Board Certified in clinical genetics and medical oncology, and he is a Professor of Oncology and Population Sciences at the City of Hope. At the vanguard of personalized medicine, Dr. Weitzel's multidisciplinary clinical, research, and training programs emphasize translational research in genetic cancer risk assessment, chemoprevention, targeted therapy, clinical and psychosocial outcomes, genetic epidemiology and health services research in underserved minorities, and hereditary cancer in Latin America. He is a member of the American Society of Clinical Oncology and the NCCN Genetics/Familial Risk Assessment practice guidelines committee. Dr. Weitzel is the principal investigator for the City of Hope Cancer Genetics Education Program and for the Clinical Cancer Genetics Community Research Network, which are funded by the National Cancer Institute.

Moderator/ Speaker: Georgia Wiesner, MD, FACMG
Vanderbilt Hereditary Cancer Program, Department of Medicine, Vanderbilt-Ingram Cancer Center, Vanderbilt University
No financial relationships to disclose.



Dr. Georgia L. Wiesner is the founding Director of the Clinical and Translational Hereditary Cancer Program in the Vanderbilt-Ingram Cancer Center. Established in 2012, this program is devoted to the care of patients and families with an increased risk for cancer. Dr. Wiesner is board-certified in both Internal Medicine and Medical Genetics and has spent the majority of her career in the fast evolving area of cancer genetics. She has a long-standing research interest in hereditary cancer susceptibility mainly focused on colon and breast cancer, as well as how tests are used in clinical medicine. She founded the first specialized clinic for delivery of genetic services to families with hereditary cancer susceptibility in Northeastern Ohio While at Vanderbilt, she and her team have done provided comprehensive cancer and genetic services to over 3500 patients, resulting in improved health outcomes for cancer patients and family members. Dr. Wiesner also has a strong commitment to research and has led or co-lead several

research projects aimed to identifying genes that cause cancer. She is now a member of the national eMERGE consortium, which has been lead by Vanderbilt investigators to develop specific methods for using genetic information as part of a person's electronic health record. In addition to her leadership at Vanderbilt, Dr. Wiesner is a past Director of the American Society of Human Genetics and Genomics, past-President of the Board of Directors of the American Board of Medical Genetics and past-Chair of the Residency Review Committee for Medical Genetics (ACGME).

Speaker: Michael Hall, MD, MS
Associate Professor of Medicine, Fox Chase Cancer Center
No financial relationships to disclose.

Dr. Hall is a health services researcher and clinical cancer geneticist at Fox Chase Cancer Center here in Philadelphia. He received his undergraduate and medical degrees from Columbia University in New York City. He completed an internal medicine residency at Harvard's Brigham and Women's hospital and a fellowship in Hematology/Oncology at the University of Chicago where he established a clinical and research focus in GI cancers and genetic risk. His current research examines novel methods to identify patients for hereditary cancer risk and communicate high risk information within families. He is the recipient of research funding from the Chemotherapy Foundation, the Greenwall Foundation, the American Cancer Society, and the National Cancer Institute.

Speaker: Carlos Gallego, MD, MS
Case Western Reserve University
No financial relationships to disclose.

After receiving his MD degree at Universidad del Valle in Cali, Colombia, Dr. Gallego trained in a combined track of Internal Medicine and Medical Genetics at University of Alabama at Birmingham, and is board certified in both specialties. He also did a year of hematology and oncology clinical fellowship at University of Michigan. Dr. Gallego also holds a Master of Science in Outcomes Research and Policy from University of Washington, where he served as an Acting Instructor in Medical Genetics, a division of the Department of Medicine. Dr. Gallego is currently an Assistant Professor at Case Western Reserve University, where he leads the cancer genetics team. Dr. Gallego's

research focuses on the implementation of next generation sequencing in clinical care and the evaluation of clinical outcomes in common inherited cancer syndromes, with an emphasis in cost-effectiveness studies.

Participation Instructions

1. Participant logs into ondemand.acmg.net
2. Once logged in the participant will access the session they would like to view. They will be asked if they would like to claim credit for the meeting, or if they will not claim credit for the meeting. Then, this information (Course description) will appear, and participant will have to attest that they have read the information. They will then click Continue.
3. After that, the participant will be able to select the credit types to claim.
4. For each session with a post-test, the participant will need to mark and complete the matching pre-test.
5. Then the participant will watch the session presentations.
6. Participant will complete viewing all session content. "Check marks" indicate which presentations have been viewed.
7. After viewing all presentations within a session, participant will click the "Claim Credit for Session" button under the CME dropdown at the top of the page.
8. Participant should take and then successfully pass the post-test. If they do not pass with a score of 80% or higher, they will have unlimited tries to pass the post-test.
9. Participant will continue the steps above to earn credits for additional sessions.
10. If a session does not have a test attached, the participant will not need to take a pre- or posttest, but will have to complete a Concurrent or Plenary session-specific evaluation to claim credit.
11. To print their certificate, the participant will click the "Print Certificate" button under the CME dropdown at the top of the page. Participant must complete the meeting evaluation (one time only) before they can access their certificate. Participant will then choose their certificate(s). The certificate(s) will be automatically updated as they earn new credits.

Stream Requirements	
Network	For best results, use a hardwired network connection instead of wireless
Full Screen Viewing	If you would like to view the webcast full screen, display the tool bar at the bottom and click the double arrow in the far right corner. The screen will enlarge to the full screen of you system. To restore the size, press the "ESC" key
Refresh Browser Window	If the webcast freezes and does not recover in 3-4 seconds, refresh browser window
Freezing or Stuttering Issues	Adjust the amount of bandwidth needed by putting your mouse anywhere over the video window. A tool bar will appear at the bottom. On the right side you will see a "HD" button,

	click on that button and you will see a list of options. The top is "auto", with decreasing numbers below. Select a lower bandwidth (such as 360p) to see if your webcast improves
For Technical Support call	1-800-504-5379

Mobile Viewing Requirements	
Android Devices	Android 2.3+ with Adobe Flash Player 10.2 or better installed Install Flash Player
Apple Devices	iOS 4+

Online Viewing Requirements	
Bandwidth	512kbps
Required Hardware and Software	Screen resolution of 1024X768 or larger Sound card and speakers/headphones
Browser	Microsoft Internet Explorer 7.0 or better Mozilla Firefox 4 or better Safari 5 or better
Windows	Operating System: Windows 8 desktop mode, Windows 7; Windows Vista; Windows XP Service Pack 2 or 3 x86 or x64 (Browsers must be in 32-bit mode) 1.6-gigahertz (GHz) or higher processor 512MB of RAM
Mac OS	Operating System: Apple Mac OS X 10.4.8 or above Intel Core™ Duo 1.83GHz or faster processor 512MB of RAM

Registration and Fees

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ACMG Members and ACMG Trainees: ($50)
Non-members ($60)
Additional fee (~$25) applies for NSGC credit that is billed by NSGC.

Questions regarding CE credit should be directed to education@acmg.net.

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