American Heart Association

Kiran Musunuru, MD, PhD, MPH

Type of organization

- Voluntary organization
- 22.5 million volunteers and supporters
- The American Heart Association is the nation’s oldest and largest voluntary organization dedicated to fighting heart disease and stroke. To improve the lives of all Americans, we provide public health education in a variety of ways. Our mission is “to build healthier lives, free of cardiovascular diseases and stroke.”

Status of organization provider education and genomics

We have active programs addressing provider genomic literacy – here's what's working
Program title(s): Two Scientific Statements addressing genomics education and literacy; an online "Basic Concepts" genetics and genomics course; "Clinical Genomics Bootcamp" held at annual AHA Scientific Sessions in 2015 and 2016
Type (resource development, curriculum/course, self-learning): documents for self-learning; online course (16 modules, a total of 4 hours in length) and YouTube videos; live workshops at annual conferences
Strategies: Education through a variety of avenues – published documents, online educational materials (through which CME/CE credit can be earned by providers), and live flipped-classroom workshops with peer instruction (in collaboration with the ISCC Innovative Approaches to Education Working Group)
Evaluation of trainee competence: Self-assessment questions in the online course (tied to CME/CE credit)
Systematic evaluation of program: Surveys; publication of a peer-reviewed report on the "Clinical Genomics Bootcamp" in the AHA journal *Circulation: Cardiovascular Genetics*
Genetic/genomic Expertise provided by: AHA volunteers who are content experts (clinician and scientist members of the AHA Council on Functional Genomics and Translational Biology)
Timeline: 2012 - present
Requests for assistance/collaboration: We are happy to share materials and collaborate with any group
Requests for RESEARCH programs: N/A

AHA Scientific Statement

Basic Concepts and Potential Applications of Genetics and Genomics for Cardiovascular and Stroke Clinicians

A Scientific Statement From the American Heart Association

Kiran Musunuru, MD, PhD, MPH, FAHA, Chair;
Kathleen T. Hickey, EdD, ANP, FAHA, Co-Chair; Sana M. Al-Khatib, MD, MHS;
Christian Delles, MD, FAHA; Myriam Fornage, PhD, FAHA; Caroline S. Fox, MD, MPH, FAHA;
Lorraine Frazier, PhD, RN, FAHA; Bruce D. Gelb, MD;
David M. Herrington, MD, MHS, FAHA; David E. Lanfear, MD, MS, FAHA;
Jonathan Rosand, MD, MSc, FAHA; on behalf of the American Heart Association Council on Functional Genomics and Translational Biology, Council on Clinical Cardiology, Council on Cardiovascular Disease in the Young, Council on Cardiovascular and Stroke Nursing, Council on Epidemiology and Prevention, Council on Hypertension, Council on Lifestyle and Cardiometabolic Health, Council on Quality of Care and Outcomes Research, and Stroke Council

Although genetics and genomics play an increasingly large role in the practice of medicine, the clinical care of patients suffering from cardiovascular disease or stroke stroke patients because it can be expected that these topics will transform the way medicine is practiced.

The purpose of this document is to serve as a resource for

AHA Scientific Statement

Enhancing Literacy in Cardiovascular Genetics

A Scientific Statement From the American Heart Association

Seema Mital, MD, FAHA, Chair; Kiran Musunuru, MD, PhD, MPH, FAHA, Vice Chair; Vidu Garg, MD, FAHA; Mark W. Russell, MD; David E. Lanfear, MD, MS, FAHA; Rajat M. Gupta, MD; Kathleen T. Hickey, RN, APNG, EdD, FAHA; Michael J. Ackerman, MD, PhD; Marco V. Perez, MD; Dan M. Roden, MD, FAHA; Daniel Woo, MD, MS, FAHA; Caroline S. Fox, MD, MPH, FAHA*; Stephanie Ware, MD, PhD; on behalf of the American Heart Association Council on Functional Genomics and Translational Biology; Council on Cardiovascular Disease in the Young; Council on Cardiovascular and Stroke Nursing; Stroke Council; Council on Lifestyle and Cardiometabolic Health; and Council on Quality of Care and Outcomes Research

***Abstract*—**Advances in genomics are enhancing our understanding of the genetic basis of cardiovascular diseases, both congenital and acquired, and stroke. These advances include finding genes that cause or increase the risk for childhood and adult-onset diseases, finding genes that influence how patients respond to medications, and the development of

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Register
$45.00
Non-members Price
FREE
Members Price

Basic Concepts of Genetics and Genomics

The activity is an online course in genetics/genomics that comprehensively covers the topics outlined in "Basic Concepts and Potential Applications of Genetics and Genomics for Cardiovascular and Stroke Clinicians: A Scientific Statement from the American Heart Association." Providers will watch 16 modules, ~4 hours total in duration, and complete multiple-choice, self-assessment questions linked to the modules to ensure an understanding of the material. After completion of the online course, providers will be "literate" with respect to genetics/genomics issues that are likely to be important for clinical practice in the next 5 years (as outlined in the aforementioned Scientific Statement).

Credits

3.25 Credits > Accreditation Council for Continuing Medical Education > *AMA PRA Category 1 Credit™*

3.25 CEU > Accreditation Council for Pharmacy Education > ACPE

0 Credits > American Heart Association > AHA

3.25 Contact Hours > American Nurses Credentialing Center > ANCC

3.25 Credits > Accreditation Council for Continuing Medical Education > Attendance Credit

Activity Information

Basic Concepts and Potential Applications of Genetics and Genomics for Cardiovascular and Stroke Clinicians

Participation and Successful Completion

Successful completion of this activity includes the following: (1) Register and attend the course. (2) Complete the evaluation survey (3) Print your AHA Certificate of attendance. CME/CE credit is offered for this activity.

Hardware/Software Requirements

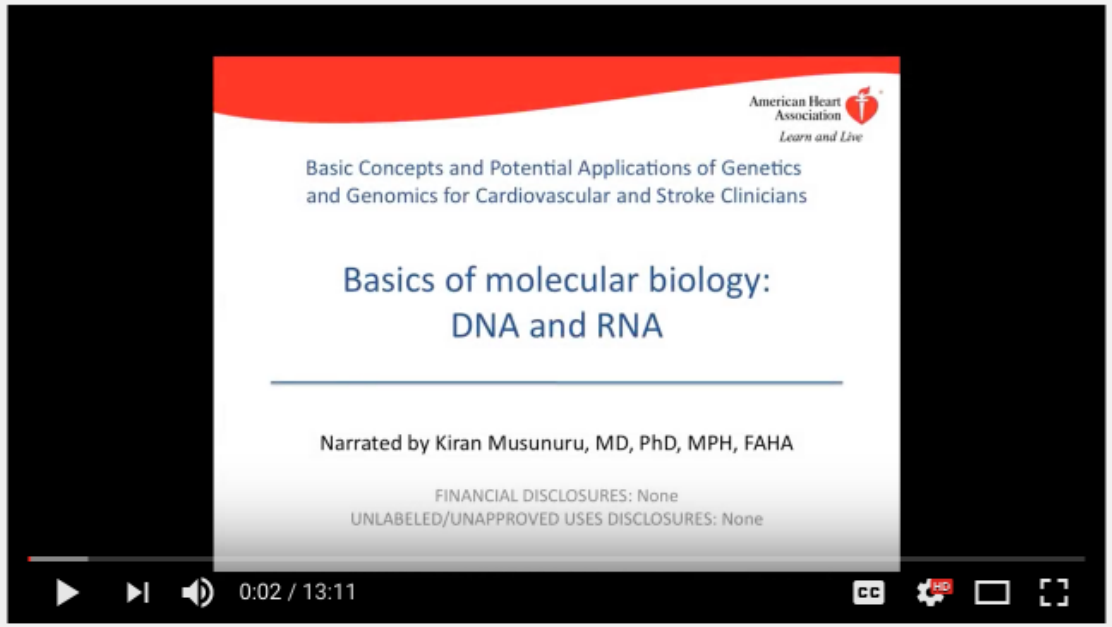
Internet Explorer 7 or greater
Firefox (Latest Version)
Google Chrome
Windows 7 or above

youtube.com

ipsc | CAMB 610 | 2016 Genetics | AHA Directory | Human BLAT Search | Human (Homo...ser Gateway | Google Calendar | My Drive - Google Drive | PubMed

YouTube

Search



Analytics | Video Manager

Basic Concepts and Potential Applications of Genetics and Genor

Kiran Musunuru

Channel settings

154 views

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Uploaded on Dec 30, 2014

Edit

Basic Concepts and Potential Applications of Genetics and Genomics for Cardiovascular and Stroke Clinicians - links to the 16 videos are below (the video on this page is Module 1):

Learn Numbers for Toddlers Teach Counting with Genevieve and Cookie Monster

Genevieve's Playhouse - Toy Learning for Ki

1,278,776 views NEW

Learning English Is Fun Official Trailer | ChuChu TV Preschool Educational Language

ChuChu TV Nursery Rhymes & Kids Songs

406,097 views NEW

Paw Patrol Best Baby Toy Learning Colors Video Gumballs Cars for Kids, Teach

Elsa's Toys & Crafts

2,925,679 views

Learning Video Paw Patrol Kids Toddler Teach Colors Children Toy Marble Gumball

Fun Place

88,397 views NEW

Tow Truck Color Ride | Learn Colors Police Car Monster Trucks Teach Colours for Kids

Edgy Eggs TV

536,411 views NEW

Links to YouTube videos (for the best viewing experience, you should adjust your YouTube settings to HD resolution using the icons in the lower right corner of the YouTube window):

Module 1 - Basics of molecular biology: DNA and RNA - http://youtu.be/gxsYk7oPX-I
Module 2 - Basics of molecular biology: transcription and translation - http://youtu.be/3zfpd00xKLw
Module 3 - The genome and DNA variants - http://youtu.be/S3L1_wPcHi8
Module 4 - Coding variants - http://youtu.be/q7BrTFeH9BM
Module 5 - Noncoding variants - http://youtu.be/JSGE0MM_Wrg
Module 6 - Genotyping and sequencing to determine the identity of DNA variants - http://youtu.be/I4GwreLZO6c
Module 7 - Monogenic traits and disorders: dominant, recessive, co-dominant - http://youtu.be/cIMO_BpJA5o
Module 8 - Monogenic traits and disorders: Mendel's first law - http://youtu.be/IfVvUhn2dUI
Module 9 - Monogenic traits and disorders: Mendel's second law - http://youtu.be/WkchNwcVzVw
Module 10 - Pedigrees and Mendelian transmission of disease - http://youtu.be/OV953iixs54
Module 11 - Linkage studies - http://youtu.be/hcNsaK2Zs74
Module 12 - Next-generation sequencing studies - http://youtu.be/WTK7DnZFMZg
Module 13 - Common variants and linkage disequilibrium - http://youtu.be/G5GBlFf-950
Module 14 - Genome-wide association studies - http://youtu.be/dvFNinls_2M
Module 15 - Risk prediction in complex diseases - http://youtu.be/3syc5qSkj6w
Module 16 - Pharmacogenomics - http://youtu.be/PsxL3GWDu4c

Clinical Genomics Bootcamp
Exercise #1

Single-Gene Testing

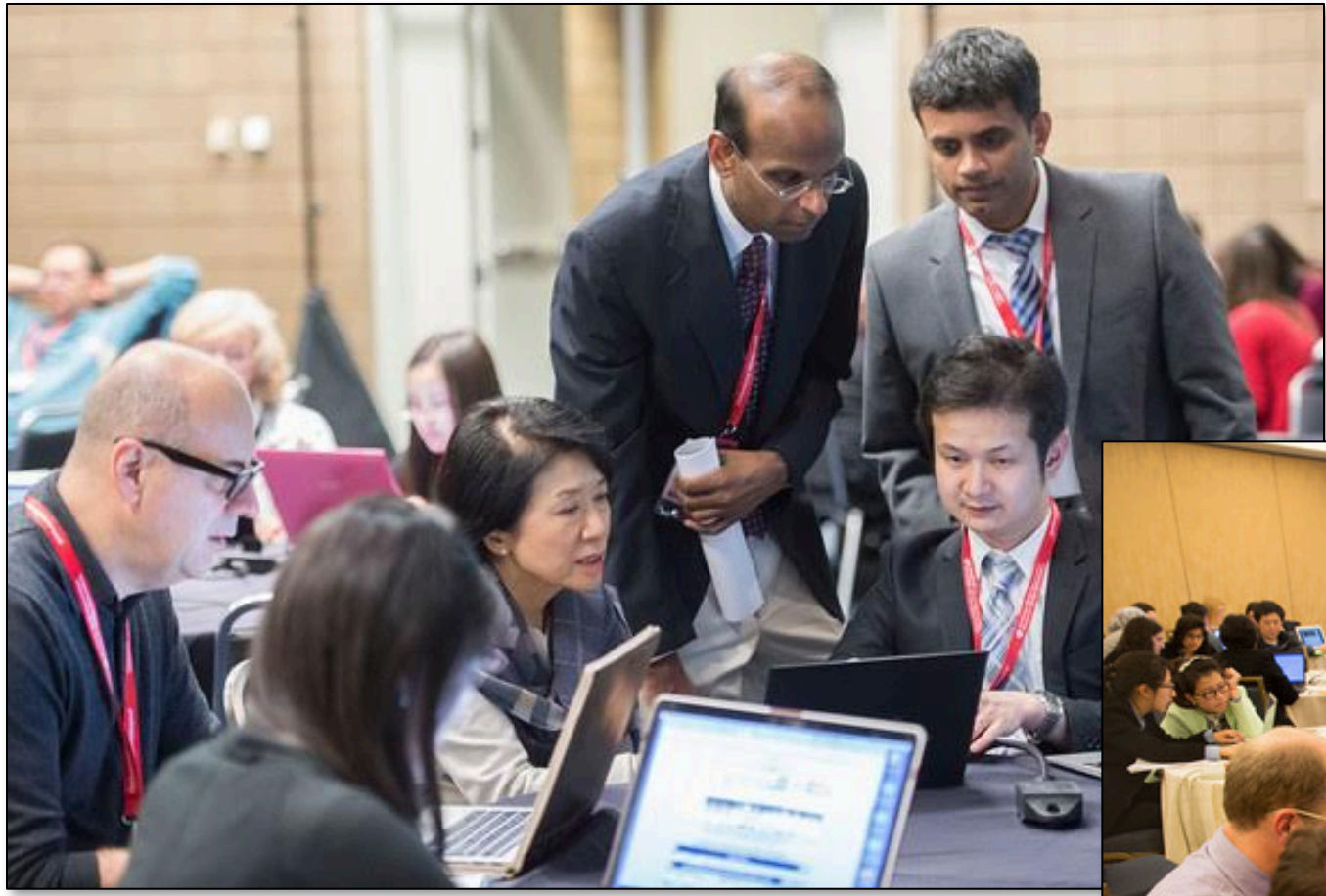
Part 2:

Upon talking to her mother about her father's medical history, the patient learns that her father had undergone some sort of genetic testing as part of a research study in the 1990s. Her mother is able to find an old report from that study that documents the presence of a mutation in MYH7, specifically the c.3981C>A (p.Asn1327Lys, also called N1327K) variant.

You refer the patient for targeted testing for the MYH7 variant reported in her father and find that she has the same variant.

3. Using ClinVar (http://www.ncbi.nlm.nih.gov/clinvar/), what is the reported overall clinical significance of the variant? How many different submitters provided a "clinical assertion" about the clinical significance of the variant, how many different assertions are listed, and how many submitters provided each of the different assertions? Review the evidence provided by each of the submitters, when available.

Search using "MYH7 N1327K", click on the relevant link with "p.Asn1327Lys", and review the information contained in the page, particularly the section at the bottom of the page under the tabs labeled "Clinical assertions" and "Summary evidence"



Special Report

Improving Genomic Literacy Among Cardiovascular Practitioners via a Flipped-Classroom Workshop at a National Meeting

Kiran Musunuru, MD, PhD, MPH, FAHA; Richard L. Haspel, MD, PhD; on behalf of the Innovative Approaches to Education Working Group of the Inter-Society Coordinating Committee for Practitioner Education in Genomics

The enormous progress in the field of human genetics since the completion of the Human Genome Project—most notably the identification of both rare and common variants associated with a plethora of clinical traits and diseases through novel methodologies, such as the genome-wide association study and next-generation DNA sequencing—has revolutionized our understanding of human health. At the same time, genetic counseling, developed a team-based, active-learning curriculum that has been implemented as workshops at many national pathology conferences.[9,10] Although the flipped-classroom concept is not novel in medical education, having been used in longitudinal settings, such as medical school courses or residency training programs,[11] there are limited examples of this teaching strategy being used successfully at a national