2014 APHMG Annual Workshop & Special Interest Groups Meetings, Napa, California

Plenary Session I : **"Be Careful What You Say": Advice on Appropriate Evaluations, References and Interviews**
Ellen Rothstein, JD, Children's Hospital, Boston

Dr. Rothstein shared her experiences from her work in the private sector and at Boston Children's hospital. Her slides and references are available on request. She started by reviewing basics regarding hiring practices. In an effort to limit problem issues down the road she stressed the need to develop a detailed hiring plan, including affirmative action and interview processes. Need to define the expectations of the position and adhere to that plan throughout the process. She recommended keeping notes and records around the interview process for 2 years after the hiring. In the interview process she stressed about being position specific and not person specific. She reviewed questions that were appropriate and not appropriate regarding this approach. She reviewed "Red Flag" reference checks in the hiring process. She also discussed navigating high risk situations and covered some guidance on letters of recommendations in difficult situations.

Plenary Session II: Banbury III: Medical Genetics Training in the Genomic Era – Presentation and Discussion of Recommendations from February 2014 Banbury Summit regarding the evolution of clinical and laboratory training for Medical Genetics
Bruce Korf, MD, University of Alabama
Mimi Blitzer, PhD, University of Maryland
Laurie Demmer, MD, Carolinas Medical Center
Gerald Feldman, MD, Wayne State University

Dr. Korf started with a review of the Banbury conferences and then a review of the focus of the Banbury III conference on the training issues for medical genetics in the genomic era. Mimi Blitzer reviewed the current state of training programs and diplomats who have certified in the recent past via the ABMG. She also reviewed the current number of trainees currently participating in programs based on a recent confirmation with the individual programs. Laurie Demmer then reviewed the discussion around the integration of genetics training. First she reviewed conversation around the possibility of offering 1 year additional training of genetics for medical specialties specifically oncology, cardiology and neurology. The consensus was not to offer a 1-year training program for non-genetics specialties. Recommended offering short courses of intermediate length to be offered at national meetings. Another question was to offer additional one-year fellowships to clinical geneticist in oncology, cardiology, etc. The consensus was that there was not enough numbers to justify developing these kinds of programs. An additional question was the role of genetic counselors to reach out to the other specialties. Finally, the question of whether there would be a separate medical genomics training pathway for clinicians. The consensus was that there should be increase in

genomics training in the current genetics training programs rather than a separate program. She also reviewed some ideas around how to achieve these goals. Jerry Feldman reviewed the current state of laboratory training programs as far as funding and including MGP. He reviewed some recent information presented at a pathology Banbury conference about the need to increase molecular diagnostics in the filed of pathology. There was discussion about the need to increase genomics in biochemical training programs. Cytogenetics and molecular genetics training programs should be integrated into unified program.

Plenary Session III: Can Physician Education in Genomics Keep Pace with Advances in Science?
Jevon Plunkett, PhD, Stanford Medical School
Kate Reed, MPH, The Jackson Laboratory
Teri Manolio, MD, PhD, NHGRI

Jevon Plunkett presented the results of a survey of US and Canadian medical schools regarding genetics curriculum in the medical school education. The survey collected information on the types, size, contact hours, and make up of the participating medical schools. The curriculum content for the responding schools was also summarized as well as methods or testing and remediation.

Kate Reed presented information about educational objectives and offerings for genetics. Challenged us to consider the audience for genetics education is broad including medical specialists, but insurance companies, and other health care providers and come from a wide variety of backgrounds and expectations. She reviewed some of the conference and online courses that exist and then also reviewed evaluation measures. Finally she reviewed future directives on education.

Teri Manolio presented information about the ISCC. She reviewed surveys and assessments that were done of different professional societies about the current state, needs, areas of concern and areas of general consensus. She reviewed the formation of the ISCC and the proposed specific activities that were to come from the ISCC activity. There were areas of Educational Products focus that were developed surrounding the ACGME competencies (http:/www.g-2-c-2.org/index.php). She showed an example of a "Use Case" template that could be used for the education (these could be developed by societies and waiting for uptake. She reviewed NHGRI training funding and goal of training new generation of leaders. She reviewed metrics to measure process and substance. The challenges for the future are sustainability of the resources, development of the materials (use cases) that can be shared, and expansion to Canada.

Plenary Session IV: Genomics Education for Genetics Students, Fellows, and Graduate Students.
Teri Manolio, MD, PhD, NHGRI
Jeanette McCarthy, MPH, PhD, UCSF School of Medicine

Teri Manolio started with a review of the approach to genomics from the standpoint of NHGRI. There was a roadmap developed around genomic research domains and funding for research initiatives and they developed a Genomic medicine advisory council. Defined Genomic Medicine and the clinical implications. Disease related genomics research defined in three topics of Discovery Research, Clinical Validation, Clinical Implementation. Implementation Roadmap addressed how to do research for clinical implementation of genomics research. Identified challenges such as: lack of institutional and clinician acceptance due to lack of evidence for outcomes, and others. Recommendations for there to be a ethical and practical guideline for reporting genetic research results for risk variants which led in part to development of Clin Gen resource. She then reviewed the Clin Var dataset development and process. This raises the question of variants that have a range of clinical actionability and characterizing where findings fall in a spectrum. She reviewed an attempt to develop a scoring system for quantifying actionability.

She then reviewed the Electronic Medical Records and Genomics Network (eMERGE) participating sites for GWAS studies and bio-repositories linked to medical records. She described the details of a Pharmacogenomics eMERGE project. Clinical Pharmacogenetics Implementation Consortium Guidelines is a resource and group that can be helpful for fellow training (specific report for Thiopurine Methyltransferase Genotype and Thiopurine Dosing). Reviewed the CSER (Clinical Sequencing Exploratory Research) project that focuses on challenges in applying sequence data to clinical care focusing on cancer care, adult medicine, pediatrics, pre-natal carrier testing.

Jeanette McCarthy then presented about educational initiatives on genomics. She shared her thoughts on needing to focus on awareness and practical information for genomic testing and less on the conceptual framework of what is genetics. She reviewed resources that are available for genomics education.
Dukepersonalizedmedicine.org
She reviewed that there are many sites and links for genomics education on this site but what is needed is a review and organization of resources that is searchable to help individuals find a resource that they might use.
She then reviewed the Coursera course. In preparing for this she talked about the pharmacogenomics section of the course and how to interpret the information.
FDA drug biomarker list for pharmacogenomics.