

Linking the Research Community • Fall 2015

# A message from David H. Ledbetter, P.h.D.



Over the past few years, our research programs at Geisinger have grown, changed and matured. Credit for that goes to an exceptional team of research faculty who collaborate, coalesce and continue to welcome new ideas and new research faculty.

This issue of *Research Connections* is devoted to welcoming and highlighting faculty that have joined Geisinger over the past year or so—full-time research faculty in our centers and institutes as well as clinician investigators (see pages 2 to 10). With each new individual come unique talents and strengths that contribute to our overall program. Going forward, our focus is on finding ways to better identify, understand and manage disease, and highlighting the critical role of innovation and research in improving patient health and care.

# Geisinger researchers receive \$3.5 million federal grant

Four-year study will use genetic information and electronic health records

Two Geisinger researchers, leading a large team of investigators, have been awarded more than \$3.5 million as part of a national effort to better understand the genetic basis of disease and to tailor medical care to people based on their genetic makeup. The award from the National Institutes of Health was announced this week and is part of the Electronic Medical Records and Genomics (eMERGE) network administered by the National Human Genome Research Institute.

Marc S. Williams, M.D., director of the Genomic Medicine Institute, and Marylyn D. Ritchie, Ph.D., director of biomedical and translational informatics, will spend the next four years combining DNA sequence information and health information in thousands of patients' electronic medical records to study two disorders: familial hypercholesterolemia and chronic rhinosinusitis.

Familial hypercholesterolemia is a largely underdiagnosed, life-threatening and treatable genetic disorder that can cause heart attack and stroke at an early age. In chronic rhinosinusitis, the sinuses surrounding nasal passages become inflamed, do not respond well to treatment and the inflammation can last three months or longer. Dr. Williams and Dr. Ritchie will examine and test approaches to discussing familial hypercholesterolemia genomic sequencing results with patients and families and how family members communicate with one another. They will also look at the impact of the environment on chronic rhinosinusitis.

As part of their study, the Geisinger researchers also plan to collect and analyze environmental data in order to study the interaction between genetics and the environment.



Atul Gawande, M.D., M.P.H., surgeon, best-selling author and public health researcher was one of three keynote speakers at Geisinger Health System's "A Century of Transformation and Innovation", Centennial Symposia on September 24 and 25.

# New research faculty brings unique talents and strengths to Geisinger's research program.

# Adam Buchanan, MS, MPH, CGC



Geisinger's practice of returning medically actionable results to patients who have agreed to have their genome sequenced has provided Adam Buchanan, clinical investigator I, with some invaluable research opportunities. Mr. Buchanan plans to conduct one-on-one interviews with patients and providers to try to answer a number of questions: How do patients want to receive their information? What kind of support do they need? What kind of infrastructure should we have in place?

Telemedicine is another topic of interest to Mr. Buchanan. He wants to marry his interest in return of results and telemedicine through a proposed grant to better understand how the method of results delivery—by person or by telemedicine—influences how people adhere to the medical recommendations. As for providers, Mr. Buchanan will question whether they are more comfortable with one mode of communication over another.

In addition, telemedicine's use has been largely unexplored in genetics and genomics, and Mr. Buchanan believes it can be successfully used in genetic counseling.

"Geisinger has more institutional support for genomics than just about any other place—that was the biggest draw for me," notes Mr. Buchanan. He says his work at Geisinger has provided him with the chance to take interests that he has worked on previously and apply them on a much broader and more supported scale.

# Brandon Fornwalt, M.D., Ph.D.



Brandon Fornwalt, investigator II, is a physician scientist searching to balance his clinical and research work. Dr. Fornwalt first discovered Geisinger when he looked for someone who could offer advice on successfully pursuing both interests. Dr. Fornwalt found his role model in Gregory Moore, M.D., Ph.D., chief emerging technology and informatics officer, director of the Institute for Advanced Applications and Abigail Geisinger Clinician Investigator. Dr. Moore, too, had balanced completing his medical training in radiology while running a research lab.

When Dr. Fornwalt visited Dr. Moore, he was immediately impressed by the amount of data available to researchers at Geisinger, including not only electronic health records, but cardiac imaging and genomic data as well. Dr. Fornwalt and his team (he arrived with four others from the University of Kentucky) hit the ground running and never looked back. As Dr. Fornwalt says, "There's almost too much to do here. The challenge is to focus and not get lost in the amount of potential projects that are here."

# Tullika Garg, M.D., MPH



Pennsylvania's status as the state with the fifth-highest incidence of bladder cancer in the country intrigues Tullika Garg, a clinician investigator and urology associate. While some of the known causes of bladder cancer include smoking and environmental and occupational exposures, the disease appears to have a disproportionately high incidence in rural populations. For that reason, Dr. Garg is developing a health services research portfolio focused on improving diagnosis, treatment and survivorship in bladder cancer.

Dr. Garg is leading a multidisciplinary project focused on improving hematuria evaluations, a key detection strategy for bladder cancer. Current guidelines recommend that any patient with hematuria (blood in the urine) should undergo an evaluation. The evaluation involves invasive, expensive procedures that do not result in any findings 70 percent of the time. Dr. Garg's multidisciplinary team includes Kenneth E. Wood, D.O., chief medical officer and director of the Institute for Advanced Application Geisinger Center for Healthcare Systems Re-Engineering; Susan Snyder, Ph.D., MBA, research investigator II; and H. Lester Kirchner, Ph.D., senior investigator and director of the biostatistics core. The team is developing a risk-stratification model using electronic health record (EHR) data to identify which patients would benefit most from a hematuria evaluation. Dr. Garg hopes to use this information to effectively target patients with the highest risk of cancer with hematuria evaluations and, in so doing, eliminate excessive testing and costs.

In collaboration with Brian Schwartz, M.D., MS, director of the Environmental Health Institute at Geisinger and professor of environmental health sciences, epidemiology and medicine at Johns Hopkins Bloomberg School of Public Health, Dr. Garg is also investigating bladder cancer incidence in the Geisinger region. The research plan is to explore geographic variations in local cancer incidence by using EHR data to geocode Geisinger patients with bladder cancer.

In addition to her research projects, Dr. Garg's long-term goal is to create a bladder cancer clinic at Geisinger. Her vision includes tackling bladder cancer with a multidisciplinary approach that addresses all of the patient's needs from diagnosis to survivorship, and integrates patient-oriented research along the cancer continuum.

## Chris Haggerty, Ph.D.



Research scientist Chris Haggerty leads a project capitalizing on Geisinger's dual data strengths: genomics and imaging. Dr. Haggerty is studying patients in the MyCode genome sequencing program who may be at risk for developing a potentially lethal disease known as arrhythmogenic right ventricular cardiomyopathy (ARVC).

ARVC accounts for 17 percent of all sudden cardiac deaths in young people. Dr. Haggerty seeks to identify asymptomatic young people who carry the ARVC mutation. He believes that imaging will play a pivotal role in determining if and when these patients develop ARVC signs. The key clinical question will be to determine when patients need potentially life-saving interventions such as implantable cardioverter defibrillators, and in what patients these devices are unnecessary.

# Shibani Kanungo, M.D., MPH, FAAP



As a result of Shibani Kanungo's leadership, Geisinger Medical Center is now designated by the Pennsylvania Department of Health as a Metabolic Evaluation and Treatment Center for metabolic disorders. This means that parents will no longer have to drive to Philadelphia or Pittsburgh to discover if their newborn has a metabolic disorder when there are questionable results on their infant's screening tests.

A metabolic geneticist who serves as director of Geisinger Health System's newborn screening and metabolic genetics program, Dr. Kanungo is addressing systemwide newborn screening and followup processes. These processes involves a wide range of employees, including pharmacists, laboratory medicine technicians, labor and delivery nurses, administrators, pediatricians, subspecialists and various clinical service line leaders. "Every Geisinger employee is vested in helping me close gaps in the newborn screening process. The culture here is in the very best interest of the patient care," she notes. "It is refreshing to see people vested in it on every level," adds Dr. Kanungo.

Dr. Kanungo's research portfolio includes identifying and reporting clinical molecular characteristics and treatment outcomes of metabolic disorders. Her work establishing Geisinger as a screening referral center will address health care access research including clinical, psychosocial and economic outcomes. To identify areas in which performance can be improved, Dr. Kanungo will look at both the prescreening and post-screening processes, such as staff training, workflow and coordination.

### Sharon Larson, Ph.D.



Sharon Larson, Ph.D., senior investigator and director of Behavioral Health, is on a mission to "create a culture of research" within the Division of Psychiatry at Geisinger as well as to develop behavioral and social health research across the health system.

Dr. Larson returned to Geisinger after working as the inaugural division director for the Division of Evaluation, Analysis and Quality in the Center for Behavioral Health Statistics and Quality and after serving as acting division director for the Division of Surveillance and Data Collection at the Substance Abuse and Mental Health Services Administration.

Evaluating the integration of behavioral health into adult and pediatric primary care practice settings is one of Dr. Larson's major projects. She is working closely with the Division of Psychiatry to examine the lessons learned, to investigate the outcomes and to quantify any cost savings associated with this intervention.

Improving survey design throughout the system is another focus of Dr. Larson's work. She is leveraging her 20-plus years of expertise in designing, administering and analyzing surveys to help Geisinger researchers and clinicians fine-tune their surveys. Dr. Larson has already advised clinicians on a wide variety of survey topics, including clinician use of preventive breast cancer drugs, cervical cancer patient knowledge and attitudes and pediatric residents' knowledge of behavioral health issues.

Dr. Larson is also working to bring people together from across the system who have interests that overlap or co-occur with behavioral health. More than 100 people responded to a survey indicating their interest in behavioral health, and about 45 people came to the inaugural meeting of the behavioral health research interest group. During the next year, Dr. Larson will work to create a formal organization that brings together researchers and clinicians who are interested in social and behavioral health research.

# Michelle Lent, Ph.D.



As a clinical psychologist and investigator I, Michelle Lent says she appreciates Geisinger's positive attitude toward research and admires its overall attitude of placing patients first in the delivery of health care.

Dr. Lent's research falls into three main areas: behavioral obesity treatment, psychosocial aspects of bariatric surgery and community-based obesity treatment and prevention studies. Dr. Lent's behavioral treatment research explores factors that can help or hinder weight loss. For example, Dr. Lent explored the effect that food addiction has on weight loss. While she had assumed that the addictive eating would hinder weight loss, her research showed it did not hinder weight loss or relate to dropping out of treatment.

Dr. Lent hopes to take advantage of the wealth of data provided by the EHR as well as psychosocial measures that have been collected on bariatric surgery patients at Geisinger. She plans to look at psychosocial factors such as psychiatric diagnoses and medications, weight bias, drug and alcohol abuse and nicotine use and examine how they impact long-term weight loss in the bariatric surgery cohort.

Dr. Lent, in conjunction with Jennifer Hosterman, D.O., a pediatrician at Geisinger, is also looking at spouses and children of bariatric surgery patients to determine whether there was any collateral effect of weight loss or health behaviors among this cohort. Geisinger has data on 40 patients and their spouses, as well as 10 children. Once the data are examined, Dr. Lent hopes to create an intervention based on the results.

According to Dr. Lent, there are currently approximately 4,000 consented bariatric research patients in the Obesity Institute database. Ten years after surgery, nearly 57 percent of the patients are still active in the EHR. The possibilities for longitudinal research are endless. She is particularly interested in looking at outcomes more than three years after surgery, "after the hype, excitement and attention has gone away," she says. "Few studies have evaluated very long-term outcomes because data have historically been difficult to capture in the long-term," adds Dr. Lent. She says she is pleased to be the beneficiary of the Geisinger Obesity Institute's forward thinking in capturing these data so well and for so long.

### Vishal Mehra, M.D., Ph.D.



Vishal Mehra, a physician scientist and director specializing in advanced cardiac imaging, has already spearheaded many changes in cardiac imaging. In working to institute state-of-the-art cardiac magnetic resonance imaging (MRI) for cardiology patients, his says his goal is to challenge the established ways of doing things.

While multiple studies demonstrate that cardiac MRI is the gold standard for imaging a variety of cardiac diseases, the implementation of this technology was limited to a few large centers. But no longer. Dr. Mehra believes that Geisinger, along with other integrated health systems, now has the ability to lead the way toward demonstrating the comparative effectiveness of cardiac MRI. Dr. Mehra believes that cardiac MRI will lead to an improved imaging quality, which in turn will lead to better outcomes and lower long-term costs.

Dr. Mehra's first order of business was to improve the image quality of existing cardiac MRI. Next, he mentored and trained technicians in cardiac MRI. As a result, the number of cardiac MRI examinations has increased steadily. These numbers should continue increasing as two additional state-of-the-art MRI machines come online: the 1.5 Tesla Siemens Aera in Danville, and the 3 Tesla Siemens Skyra at Wilkes-Barre next year.

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In addition, Dr. Mehra is involved in starting the Advanced Cardiac Imaging Fellowship for cardiac MRI and cardiac CT. The first trainee fellow began this past summer.

According to Dr. Mehra, Geisinger's imaging database and cardiology imaging database linked with clinical outcomes create an opportunity to look at important clinical predictors of disease risk and progression.

What's more, Dr. Mehra is looking at the clinical and genomic correlates for coronary artery disease and hypertrophic cardiomyopathy. This work has resulted in some exciting data related to rare genomic variants that will add to the missing heritability of coronary artery disease. Other research goals will explore the role of cardiac MRI in acute coronary disease and coronary syndrome, focusing on the highest-risk patients who have a type of heart attack known as ST segment elevation myocardial infarction, or STEMI. Dr. Mehra plans to demonstrate that certain unique imaging characteristics from a cardiac MRI can be used to predict which patients will do better, helping to risk-stratify patients in new ways.

# Uchenna Ofoma, M.D., MS



Uchenna Ofoma, associate in critical care and director of critical care fellowship research, strongly believes in guiding the next generation of researchers. He works to incorporate fellows and residents in his research endeavors. "I've been able to get where I am simply because I was mentored," he says. "I don't think research should be done in isolation just so we can publish," he adds.

Dr. Ofoma incorporates fellows and residents into his research, which is focused on two areas: hospitallevel variations in outcomes for critically ill patients and the role that human factors and non-patient level factors play in patient safety. His long-term goal is to identify and implement process targets for standardization, improved patient safety and cost reduction in intensive care units (ICUs) that can be adapted nationally and internationally.

His decision to come to Geisinger was partly influenced by the Geisinger Center for Healthcare Systems Re-Engineering (CHSR). Dr. Ofoma says he was attracted to the concept that applying principles of industrial and systems engineering to health care delivery would improve patient outcomes. Dr. Ofoma is working with colleagues from CHSR to use systems engineering methods and other quality control methodologies to study preventable process failures in ICU workflow.

## Sarah Pendergrass, Ph.D.



Instead of focusing on a particular disease or set of disorders, Sarah Pendergrass, investigator I, is phenotype agnostic. This genetic bioinformatician focuses on developing techniques and methods to more efficiently analyze large volumes of high throughput data to uncover the genetic architecture of complex traits.

Geisinger's comprehensive data repository—from genomic data to de-identified EHR—is what attracted Dr. Pendergrass to Geisinger. She is excited about the possibilities of combining phenotypic data available through Geisinger's de-identified EHR, an almost two-decade-old repository, with genetic data available through the Geisinger MyCode Community Health Initiative.

Dr. Pendergrass has extensive experience developing novel methodologies and performing highthroughput analyses for discovery, such as those for phenome-wide association studies (PheWAS) which combine the exploration of phenotypic structure and genotypic variation. According to Dr. Pendergrass, by using the PheWAS approach, you can elucidate the impact of one genetic variant on more than one phenotype, and that exposes more of the network between phenotypes and our genetic architecture. In addition to the EHR and genetic data, Dr. Pendergrass is also exploring data available on the Geisinger health payer side, such as medication data. By using these data coupled with EHR data, Dr. Pendergrass can study pharmacogenomics outcomes and examine the impact of genetic variation on drug response.

# Alanna Kulchak Rahm, Ph.D., MS, LCGC



Alanna Kulchak Rahm initially joined Geisinger as a genetic consultant and is now part of the bioethics team. "Research is a part of everyday life at Geisinger," she explains. "We are constantly improving what we are doing and helping people manage their health."

Teaming with Dan Davis, Ph.D., director of bioethics, as well as with the external ethics advisory committee and others in the Genomic Medicine Institute, Dr. Rahm's work focuses on returning results to parents whose children's genes have been sequenced. What information do the parents want to know? When do they want to know it? Do they want to know about results of adult-onset conditions? Do parents only want results about health issues that can begin to be managed in childhood?

Family communication tops Dr. Rahm's list of topics. With Geisinger returning results on 76 autosomal dominant conditions, this means that first-degree relatives are at a 50 percent risk to have the condition in question. Current practice is to have the patient share results with family members, but Dr. Rahm is taking a deeper look at the dynamics of those interactions. In fact, she is leading focus groups of biobank participants—both those who have received results and those who haven't. She sees the importance of family communication, because Geisinger clinicians often provide care for multiple generations of the same family, not just the affected family member.

In addition to questions surrounding return of results, Dr. Rahm submitted a grant application with the Health Maintenance Organization Research Network (soon to be the Health Care Systems Research Network) to look at factors that facilitate and hinder evidence-based practice implementation in health care systems. Specifically, Dr. Rahm proposes using the implementation of a universal Lynch syndrome screening across Geisinger as a case study to develop an efficient methodology for studying and facilitating implementation across systems.

Dr. Rahm says her greatest challenge at Geisinger is deciding what questions to try to answer first. "I feel like here the response is always 'How we can answer that question?" she says. "Which means there is way more stuff to do."

## Marylyn Ritchie, Ph.D.



Marylyn Ritchie, a senior investigator and director of the biomedical & translational informatics program, believes there is no better place than Geisinger to pursue personalized medicine. Dr. Ritchie holds a dual appointment at Geisinger and at The Pennsylvania State University, where she is Paul Berg Professor of biochemistry and molecular biology and director of the Center for Systems Genomics.

Dr. Ritchie is thrilled to have the best of both worlds: she has an academic lab at Penn State where she can mentor graduate students and teach, and she has a lab at Geisinger where, as part of a large integrated health system, she can pursue her research interests. Being at Geisinger has provided Dr. Ritchie with the perfect opportunity to conduct her research at a faster pace and in a more integrated way.

Utilizing the rich longitudinal phenotype data available in Geisinger's EHR combined with the large amount of genomic data available through MyCode, Dr. Ritchie and her group are conducting phenotypic mining or clustering of subgroups of patients. She is interested in examining phenotypically

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similar subgroups and looking at specific genes within that subgroup. For example, not all cases of Type 2 diabetes present with the same symptoms. Type 2 diabetes in people with high body mass index (BMI) might be very different from Type 2 diabetes in people with low BMI.

Another interest of Dr. Ritchie's is to examine polygenetic models. Typically, people have looked for one gene at a time and searched for associations with a trait. Dr. Ritchie thinks it's likely there are multiple genes acting together.

Dr. Ritchie also hopes to look at genetic and drug interactions. In the past, most of the studies that have found genes that were important for adverse events or drug response were small, focused studies. It's possible that the effects of these variants are not as large as previously thought because researchers had only looked in very small subgroups who had adverse events.

Dr. Ritchie thinks it will be interesting to see what percent of the MyCode population has a variant for a particular drug. She will be able to see how often the genetic variant predicted a problem with the drug versus how many people have the variant but do not have a problem with the medication. While most pharmacogenetic studies have focused on a single variant, Ritchie believes "it's very possible that it is not just a single variant, but a combination of variants that determine drug interactions."

# Andrea Seeley, M.D.



Taking a job at Geisinger was a bit of a homecoming for Andrea Seeley. Both Dr. Seeley and her husband are from Pennsylvania and rotated through Geisinger during medical school. Liking Geisinger's academic and research flexibility, this pediatric geneticist decided to focus her research on applications to clinical care and improving the patient experience.

Dr. Seeley is interested in helping to transition families with fetal concerns from prenatal to pediatric genetics, and plans to become more involved in the multidisciplinary clinic that occurs near 34 weeks gestation. She hopes to engage specialists and patients in research to explore the optimal transition point from prenatal to pediatric genetics care—from the patient's perspective.

Another emerging area of research for Dr. Seeley is the return of results from the MyCode project. Following DNA analysis of a sample, adult participants are notified when there is a difference that requires a change in their medical management. Currently, pediatric samples are not sequenced. But when an adult family member is diagnosed with an inherited condition that would require a medical intervention, a child may need to be evaluated. Dr. Seeley hopes to help families manage this information. In turn, these families will help Geisinger further the mission of precision health.

# Neel Soares, M.D.



Neelkamal Soares, a developmental-behavioral pediatrician and medical director of the Geisinger Telemedicine Program, has two main areas of research interest: the use of technology for diagnosis or treatment of children with autism spectrum disorders (ASD) and the use of telehealth for clinical care. As a result, he is collaborating with experts in biomedical, electrical and computer engineering; psychiatrists; and educational psychologists and geographers.

Currently, Dr. Soares is exploring different technologies for use with children with ASD. One project in collaboration with the University of Kentucky, for example, involves creation of a "virtual mirror." Children with ASD typically lack interest in social interactions, but appear to be highly interested in their own image in mirrors. By combining visual feedback and real-time rendering of new behaviors, the virtual mirror is expected to deliver more effective behavioral modeling for children with ASD.

Another technology project involves exploring the use of commercially off-the-shelf devices to aid in creating a quantitative definition of hyperactivity. Current definitions of hyperactivity are subjective, which leads to biased reporting. Past efforts to use sensors have been too bulky and expensive for regular use in the daily environment. This project explores the use of smartphones, repurposing their motionsensing and geopositioning technologies to serve as hyperactivity sensors.

In the telemedicine arena, Dr. Soares collaborated with Bucknell Department of Geography experts to use innovative mapping techniques from patient data in the EHR to pinpoint ideal telemedicine locations. "Geisinger is at the forefront of this type of research," explains Dr. Soares. "There are not many other organizations where you can extract exact patient location."

Dr. Soares believes that the project to determine optimal telemedicine sites is the quintessential example of a learning health care system. "This is where data drives business and clinical decision-making," he says.

### Jonathan Suever, Ph.D.



As a research scientist, Jonathan Suever is seeking ways to better leverage cardiac imaging data in clinical practice to improve the diagnosis and treatment of patients with cardiovascular disease. A cardiac imaging study consists of hundreds of images, explains Dr. Suever, but physicians generally derive one or two important numbers and never use the rest of the data. Dr. Suever believes that computers can help to extract additional information from the images to help enhance the care of these patients.

## Cora Taylor, Ph.D.



Cora Taylor, a clinical psychologist at the Autism and Developmental Medicine Institute (ADMI), says she was attracted to Geisinger because she could split her time between her clinical and her research work and also have the opportunity to work with multidisciplinary teams. During Dr. Taylor's 60 percent research time, she is focused on three areas: fine-tuning screening tools, developing interventions for preadolescent boys with developmental disabilities and exploring how genetic components underlying developmental disabilities influence the developmental profiles of children.

Dr. Taylor began her work with autism screening tools at Vanderbilt University, where she served as a postdoctoral fellow at the Vanderbilt Kennedy Center's Treatment and Research Institute for Autism Spectrum Disorders. The problem with current autism screeners is that while they screen for autism, they also pick up other issues. As Dr. Taylor explains, "This creates a system clog. Everyone thinks they need to get into developmental medicine, when actually some people would be better served by psychologists or neurologists—they don't need autism specialists."

Dr. Taylor's work involves improving a screener's specificity by pinpointing a set of questions that help identify parents who over- or underreport their child's symptoms. Last summer, Dr. Taylor and Marissa Mitchel, MS, CCC-SLP, a speech-language pathologist, ran a group focused on social skills for 8- to 12-year-old boys. While feedback on the course was positive, turnout was low because many parents had difficulty traveling to ADMI in Lewisburg. This year, Dr. Taylor will explore whether this group could be effectively run using telemedicine, allowing families to participate without traveling long distances.

According to Dr. Taylor, one of the biggest questions for parents of children with developmental disorders is identifying the long-term prognosis. She hopes to help parents find a more individualized trajectory for their child's development by combining information about the genetics of the disorder with information on family background.

# Vanessa Troiani, Ph.D.



As director of acquisition for the Advanced Imaging Core with the ADMI, Dr. Troiani is actively working on ways to effectively image children with severe impairments in functioning. She began working with MRI as an undergraduate, linking MRI morphology from a postmortem brain with amygdala tissue samples from the same brain.

Dr. Troiani has developed new procedures to help children feel more comfortable with the MRI. The purchase of a mock scanner allows children to acclimate to the scanner environment. To increase comfort level and reduce anxiety, Dr. Troiani presents patients with reinforcing images intermixed with images of a child's particular preference (e.g., animals or trains) while in the scanner. She tested these procedures with a group of patients diagnosed with Smith-Magenis syndrome (SMS), a developmental disorder that includes mild to moderate intellectual disability as well as impulse control issues. Previous MRI studies of SMS patients (and those with other developmental disabilities) relied heavily on the use of sedation. With Dr. Troiani's modifications, the SMS patients were able to stay in the mock scanner for up to 12 minutes, presenting the opportunity for important future research to occur.

Trained as a visual cognitive neuroscientist, Dr. Troiani is particularly interested in how visual attention is atypical in children with developmental disabilities. She has recently been funded by the Simons Foundation to pursue research on pupillometry, the measurement of pupil diameter. In a study of 100 children, she will also examine the connection between phenotypic and eye-tracking data.

Dr. Troiani is exploring whether researchers can measure brain function indirectly using an eye tracker to identify atypical attention in children with a variety of developmental brain disorders. "Changes in pupil dilation are the first physiological step that determines the type and quality of information that we naturally absorb and ultimately learn from in the world," she explains. "My goal is to understand how this step is atypical in children with neurodevelopmental disorders, with the hopes that it can lead to a transdiagnostic treatment strategy."

Dr. Troiani is excited to be at an institution like Geisinger, which sits at the crossroads of research and clinical innovation. "At Geisinger, I can pursue these bold research goals while being part of the same community that I'm serving," she adds.

# Jennifer K. Wagner, J.D., Ph.D.



Jennifer Wagner, associate director of bioethics research, comes to Geisinger from Washington, D.C., where she served in a U.S. senator's office as an AAAS Science & Engineering Congressional Fellow. Dr. Wagner earned her J.D. from the University of North Carolina and her Ph.D. in anthropology from The Pennsylvania State University. She completed postdoctoral appointments at Duke University's Institute for Genome Sciences and Policy and the University of Pennsylvania's Center for the Integration of Genetic Healthcare Technologies. In addition to conducting her academic research, Dr. Wagner has been a practicing attorney in Pennsylvania since 2007. You can find her on Twitter as @DNAlawyer.

# **Geisinger Publications**

The following is a list of high impact journal articles published by Geisinger research faculty from May through September 2015:

# May 2015 Plublications

**Diehl DL, Gabrielsen JD, Strodel WE.** The challenges of endoscopic retrograde cholangiopancreatography in gastric bypass patients: the game is not over yet. Gastroenterology. 2015 Sep. 148(4):857-858. **IMPACT FACTOR 16.716** 

Fihn SD, Blankenship JC, Alexander KP, Bittl JA, Byrne JG, Fletcher BJ, Fonarow GC, Lange RA, Levine GN, Maddox TM, Naidu SS, Ohman EM, Smith PK. 2014 ACC/AHA/ AATS, PCNA/SCAI/STS focused update of the guideline for the diagnosis and management of patients with stable ischemic heart disease: a report of the American College of Cardiology/ American Heart Association Task Force on Practice Guidelines, and the American Association for Thoracic Surgery, Preventive Cardiovascular Nurses Association, Society for Cardiovascular Angiography and Interventions, and Society of Thoracic Surgeons. Circulation. 2014 Nov 4. 130(19):1749-1767. IMPACT FACTOR 14.43

Fihn SD, Blankenship JC, Alexander KP, Bittl JA, Byrne JG, Fletcher BJ, Fonarow GC, Lange RA, Levine GN, Maddox TM, Naidu SS, Ohman EM, Smith PK. 2014 ACC/AHA/ AATS, PCNA/SCAI/STS focused update of the guideline for the diagnosis and management of patients with stable ischemic heart disease: a report of the American College of Cardiology/ American Heart Association Task Force on Practice Guidelines, and the American Association for Thoracic Surgery, Preventive Cardiovascular Nurses Association, Society for Cardiovascular Angiography and Interventions, and Society of Thoracic Surgeons. Journal of the American College of Cardiology.

# 2014 Nov 4. 64(18):1929-1949. **IMPACT** FACTOR 16.503

Moorman AC, Xing J, Ko S, Rupp LB, Xu F, Gordon SC, Lu M, Spradling PR, Teshale EH, Boscarino JA, Vijayadeva V, Schmidt MA, Holmberg SD; CHeCS Investigators. Late diagnosis of hepatitis C virus infection in the Chronic Hepatitis Cohort Study (CHeCS): Missed opportunities for intervention. Hepatology. 2015 May;61(5):1479-84 IMPACT FACTOR 11.055

Turner TN, Sharma K, Oh EC, Liu YP, Collins RL, Sosa MX, Auer DR, Brand H, Sanders SJ, Moreno-De-Luca D, Pihur V, Plona T, Pike K, Soppet DR, Smith MW, Cheung SW, **Martin CL**, State MW, Talkowski ME, Cook E, Huganir R, Katsanis N, Chakravarti A. Loss of delta-catenin function in severe autism. Nature. 2015 Apr 2. 520(7545):51-56. **IMPACT FACTOR 41.456** 

# June 2015

**Ofoma UR**, Chandra S, Kashyap R, Herasevich V, Ahmed A, Gajic O, Pickering BW, Farmer CJ. Findings from the implementation of a validated readmission predictive tool in the discharge workflow of a medical intensive care unit. Annals of the American Thoracic Society. 2014 Jun. 11(5):737-743. **IMPACT FACTOR 12.996** 

Rehm HL, Berg JS, Brooks LD, Bustamante CD, Evans JP, Landrum MJ, **Ledbetter DH**, Maglott DR, **Martin CL**, Nussbaum RL, Plon SE, Ramos EM, Sherry RL, Watson MS. ClinGen – the clinical genome resource. New England Journal of Medicine. 2015 May 27. **IMPACT FACTOR 55.873** 

# July 2015

Gordon SC, Lamerato LE, Rupp LB, Holmberg SD, Moorman AC, Spradling PR, Teshale E, Xu F, Boscarino JA, Vijayadeva V, Schmidt MA, Oja-Tebbe N, Lu M. Prevalence of Cirrhosis in Hepatitis C Patients in the Chronic Hepatitis Cohort Study (CHeCS): A Retrospective and Prospective Observational Study. American Journal of Gastroenterology. 2015 Jul 28. [Epub ahead of print] **IMPACT FACTOR 10.755** 

# August 2015

Fang MC, Fan D, Sung SH, Witt DM, Yale SH, **Steinhubl SR**, Go AS. Outcomes in adults with acute pulmonary embolism who are discharged from emergency departments: the Cardiovascular Research Network Venous Thromboembolism study. JAMA Internal Medicine. 2015 Jun. 175(6):1060-1062. **IMPACT FACTOR 15.04** 

Karam O, Demaret P, Shefler A, Lteutre S, Spinella PC, Stanworth SJ, Tucci M, McKinley D, **Scarlett E, Sankey** J, **Parikh M**, on behalf of Canadian Critical Care Group (CCCTG), Pediatric Acute Injury and Sepsis Investigators (PALISI), Bloodnet, PlasmaTV Investigators. Indications and effects of plasma transfusions in critically ill children. American Journal of Respiratory Care Medicine. 2015 Jun 15. 191(12):1395-1402. **IMPACT FACTOR 11.986** 

Maier R, Moser G, Chen GB, Ripke S; Cross-Disorder Working Group of the Psychiatric Genomics Consortium (**Martin CL**, **Ledbetter DH**), Coryell W, Potash JB, Scheftner WA, Shi J, Weissman MM, Hultman CM, Landén M, Levinson DF, Kendler KS, Smoller JW, Wray NR, Lee SH. Joint analysis of psychiatric disorders increases accuracy of risk prediction for schizophrenia, bipolar disorder, and major depressive disorder. American Journal of Human Genetics. 2015 Feb 5;96(2):283-94. doi: 10.1016/j. ajhg.2014.12.006. Epub 2015 Jan 29. **IMPACT FACTOR 11.202** 

Network and Pathway Analysis Subgroup of Psychiatric Genomics Consortium (**Martin CL**, **Ledbetter DH**). Psychiatric genome-wide association study analyses implicate neuronal,

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#### (Continued from page 11)

immune and histone pathways. Nature Neuroscience. 2015 Feb;18(2):199-209. doi: 10.1038/nn.3922. Epub 2015 Jan 19. Erratum in: Nature Neuroscience. 2015 Jun;18(6):926. **IMPACT FACTOR 16.095** 

### July 2015 Publications

### High-Impact Journals (Impact factor >10)

Gordon SC, Lamerato LE, Rupp LB, Holmberg SD, Moorman AC, Spradling PR, Teshale E, Xu F, **Boscarino JA**, Vijayadeva V, Schmidt MA, Oja-Tebbe N, Lu M. Prevalence of Cirrhosis in Hepatitis C Patients in the Chronic Hepatitis Cohort Study (CHeCS): A Retrospective and Prospective Observational Study. American Journal of Gastroenterology. 2015 Jul 28. [Epub ahead of print] **IMPACT FACTOR 10.755** 

### Others

Bernhardt BA, Kellom K, Barbarese A, Faucett WA, Wapner RJ. An exploration of genetic counselors' needs and experiences with prenatal chromosomal microarray testing. Journal of Genetic Counseling. 2014 Dec. 23(6):938-947.

Borthwick KM, Smelser DT, Bock JA, Elmore JR, Ryer EJ, Ye Z, Pacheco JA, Carrell DS, Michalkiewicz M, Thompson WK, Pathak J, Bielinski SJ, Denny JC, Linneman JG, Peissig PL, Kho AN, Gottesman O, Parmar H, Kullo IJ, McCarty CA, Böttinger EP, Larson EB, Jarvik GP, Harley JB, Bajwa T, Franklin DP, Carey DJ, Kuivaniemi, H and Tromp G. (2015) Ephenotyping for Abdominal Aortic Aneurysm in the Electronic Medical Records and Genomics (eMERGE) Network: Algorithm Development and Konstanz Information Miner Workflow. Biomedical Data Mining 4: 113. [Epub ahead of print].

**Christensen TJ**, **Horwitz DS**, Kubiak EN. Natural history of anterior chest wall numbness after plating of clavicle fractures: educating patients. Journal of Orthopaedic Trauma. 2014 Nov. 28(11):642-647.

**Chung PJ**, Baum RA, Soares NS, Chan E. Introduction to quality improvement part two: making and maintaining change. Journal of Developmental & Behavioral Pediatrics. 2014 Oct. 35(8):543-548.

**Finucane B, Challman TD, Martin CL, Ledbetter DH**. Shift happens: family background influences clinical variability in genetic neurodevelopmental disorders. Genetics in Medicine. 2015 Jul 9.

**Gaslightwala I, Khara HS, Diehl DL**. Syphilitic gummas mistaken for liver metastases. Clinical Gastroenterology & Hepatology. 2014 Nov. 12(11):e109-110.

Mackeen AD, Packard RE, Ota E, Speer L. Antibiotic regimens for postpartum endometritis. Cochrane Database of Systematic Reviews. 2015.

Makrygiannis G, Coutois A, Drion P, Defraigne JO, **Kuivaniemi H**, Sakalihasan N. Sex differences in abdominal aortic aneurysms: the role of sex hormones. Annals of Vascular Surgery. 2014 Nov. 28(8):1946-1958.

Mi W, Lin Q, Childress C, Sudol M, **Robishaw J**, **Berlot CH**, Shabahang M, **Yang W**. Geranylgeranylation signals to the Hippo pathway for breast cancer cell proliferation and migration. 2015 Jun 11. 34(24):3095-3106.

Mosley JD, Shaffer CM, Van Driest SL, Weeke PE, Wells QS, Karnes JH, Velez Edwards DR, Wei WQ, Teixeira PL, Bastarache L, Crawford DC, Li R, Manolio TA, Bottinger EP, McCarty CA, Linneman JG, Brilliant MH, Pacheco JA, Thompson W, Chisholm RL, Jarvik GP, Crosslin DR, Carrell DS, Baldwin E, Ralston J, Larson EB, Grafton J, Scrol A, Jouni H, Kullo IJ, Tromp G, Borthwick KM, Kuivaniemi H, Carey DJ, Ritchie MD, Bradford Y, Verma SS, Chute CG, Veluchamy A, Siddiqui MK, Palmer CN, Doney A, Mahmoud Pour SH, Maitlandvan der Zee AH, Morris AD, Denny JC, Roden DM. A genome-wide association study identifies variants in KCNIP4

associated with ACE inhibitor-induced cough. Pharmacogenomics J. 2015 Jul 14. [Epub ahead of print].

Pen A, Tam Y, Chen L, Dorbala S, Di Carli MF, Merhige ME, **Williams BA**, Veladar E, Min JK, Pencina MJ, Berman DS, Beanlands RS, Shaw LJ, Chow BJ. Prognostic value of Rb-82 positron emission tomography myocardial perfusion imaging in coronary artery bypass patients. European Heart Journal: Cardiovascular Imaging. 2014 Jul. 15(7):787-792.

Petrick AT, Still CD, Wood GC, Vitunic MA, Plank M, McGrail L, Strodel WE, Gabrielsen JD, Rogers J, Benotti P. Feasibility and impact of an evidence-based program for gastric bypass surgery. Journal of the American College of Surgeons. 2015 May. 220(5):855-862.

Rasmussen LV, Thompson WK, Pacheco JA, Kho AN, Carrell DS, Pathak J, Peissig PL, **Tromp G**, Denny JC, Starren JB. Design patterns for the development of electronic health record-driven phenotype extraction algorithms. Journal of Biomedical Informatics. 2014 Oct. 51:280-286.

Rolph RC, Waltham M, Smith A, **Kuivaniemi H**. Expanding horizons for abdominal aortic aneurysms. AORTA. 2015 Feb. 3(1):9-15.

**Schreiber R**. Value of WELLS's pulmonary embolism prediction score in elderly outpatients. Journal of the American Geriatrics Society. 2015 May. 63(5):1048-1049.

Simon SD, Koyama T, Zacharia BE, Schirmer CM, Cheng JS. Impact of clinical trials on neurosurgical practice: an assessment of case volume. World Neurosurgery. 2015 Apr. 83(4):431-437.

Sun A, Yu G, Dou X, Yan X, **Yang W**, **Lin Q**. Nedd4-1 is an exceptional prognostic biomarker for gastric cardia adenocarcinoma and functionally associated with metastasis. Molecular Cancer. 2014 Nov 14. 13:248.

Tawari AA, Kempegowda H, Suk M, Horwitz DS. What makes an

intertrochanteric fracture unstable in 2015? Does the lateral wall play a role in the decision matrix? Journal of Orthopaedic Trauma. 2015 Apr. 29(suppl 4):S4-S9.

Weil RJ, Mavinkurve GG, Chao ST, Vogelbaum MA, Suh JH, Kolar M, Toms SA. Intraoperative radiotherapy to treat newly diagnosed solitary brain metastasis: initial experience and longterm outcomes. Journal of Neurosurgery. 2015 Apr. 122(4):825-832.

### August 2015 Publications

# High-Impact Journals (Impact factor >10)

Fang MC, Fan D, Sung SH, Witt DM, Yale SH, **Steinhubl SR**, Go AS. Outcomes in adults with acute pulmonary embolism who are discharged from emergency departments: the Cardiovascular Research Network Venous Thromboembolism study. JAMA Internal Medicine. 2015 Jun. 175(6):1060-1062. **IMPACT FACTOR 15.04** 

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Maier R, Moser G, Chen GB, Ripke S; Cross-Disorder Working Group of the Psychiatric Genomics Consortium (**Martin CL, Ledbetter DH**), Coryell W, Potash JB, Scheftner WA, Shi J, Weissman MM, Hultman CM, Landén M, Levinson DF, Kendler KS, Smoller JW, Wray NR, Lee SH. Joint analysis of psychiatric disorders increases accuracy of risk prediction for schizophrenia, bipolar disorder, and major depressive disorder. American Journal of Human Genetics. 2015 Feb 5;96(2):283-94. doi: 10.1016/j. ajhg.2014.12.006. Epub 2015 Jan 29. **IMPACT FACTOR 11.202** 

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# Others

Anderson CA, Cobb LK, Miller ER 3rd, Woodward M, Hottenstein A, **Chang AR**, Mongraw-Chaffin M, White K, Charleston J, Tanaka T, Thomas L, Appel LJ. Effects of a behavioral intervention that emphasizes spices and herbs on adherence to recommended sodium intake: results of the SPICE randomized clinical trial. American Journal of Clinical Nutrtition. 2015 Aug 12.

Bernier R, Steinman KJ, Reilly B, Wallace AS, Sherr EH, Pojman N, Mefford HC, Gerdts J, Earl R, Hanson E, Goin-Kochel RP, Berry L, Kanne S, Snyder LG, Spence S, Ramocki MB, Evans DW, Spiro JE, **Martin CL**, **Ledbetter DH**, Chung WK. Clinical phenotype of the recurrent 1q21.1 copynumber variant. Genetics in Medicine. 2015 Jun 11. doi: 10.1038/gim.2015.78. [Epub ahead of print].

**Fargen KM**, **Jauch E**, **Khatri P**, **Baxter B**, **Schirmer CM**, **Turk AS**, **Mocco J**. Needed dialog: regionalization of stroke systems of care along the trauma model. Stroke. 2015 Jun. 46(6):1719-1726.

Finucane B, Challman TD, Martin CL, Ledbetter DH. Shift happens: family background influences clinical variability in genetic neurodevelopmental disorders. Genetics in Medicine. 2015 Jul 9. [Epub ahead of print].

**Grant MP, Cavanaugh A, Breitwieser GE**. 14-3-3 Proteins Buffer Intracellular Calcium Sensing Receptors to Constrain Signaling. PLOS One. 2015 Aug 28;10(8). eCollection 2015.

Haller, JM, Kubiak EN, Spiguel A, Gardner MJ, **Horwitz DS**. Intramedullary nailing of tibial shaft fractures distal to total knee arthroplasty. Journal of Orthopaedic Trauma. 2014 Dec. 28(12):e296-e300.

Hsieh J, Elson P, Otvos B, Rose J, Loftus C, Rahmathulla G, Angelov L, Barnett GH, **Weil RJ**, Vogelbaum MA. Tumor progression in patients receiving adjuvant whole-brain radiotherapy vs localized radiotherapy after surgical resection of brain metastases. Neurosurgery. 2015 Ap. &c6(4):411-420.

Jones A, Treas J, Yavoich B, Dean D, Danella J, Yumen O. Dosimetric differences between onoperative plans using Cs-131 in transrectal ultrasound-guided brachytherapy for prostatic carcinoma. Medical Dosimetry. 2014. 39(4):286-291.

Kelly ML, Rosenbaum BP, Kshettry VY, **Weil RJ**. Comparing clinician- and patient-reported outcome measures after hemicraniectomy for ischemic stroke. Clinical Neurology & Neurosurgery. 2014 Nov. 126:24-29.

Kirkpatrick BE, Riggs ER, Azzariti DR, Miller VR, Ledbetter DH, Miller DT, Rehm H, Martin CL, Faucett WA; ClinGen Resource. GenomeConnect: Matchmaking Between Patients, Clinical Laboratories, and Researchers to Improve Genomic Knowledge. Human Mutation. 2015 Jul 16. doi: 10.1002/humu.22838. [Epub ahead of print].

Kotloff RM, Blosser S, Fulda GJ, Malinski D, Ahya VN, Angel L, Byrnes MC, DeVita MA, Grissom TE, Halpern SD, Nakagawa TA, Stock PG, Sudan SDL, **Wood KE**, Anillo SJ, Bleck TP, Eidbo EE, Fowler RA,m Glazier AK, Gries C, Hasz R, Herr D, Khan A, Landsberg D, Lebovitz DJ, Levine DJ, Mathur M, Naik P, Niemann CU, Nunley DR, O'Connor KJ, Pelletier SJ, Rahman O, Ranjan D, Salim A,

(Continued on page 14)

Sawyer RG, Shafer T, Sonneti D, Spiro P, Valapour M, Vikraman-Sushama D, Whelan TP, Society of Critical Care Medicine/American College of Chest Physicians/Association of Organ Procurement Organizations Donor Management Task Force. Management of the potential organ donor in the ICU: Society of Critical Care Medicine/ American College of Chest Physicians/ Association of Organ Procurement Organizations Consensus Statement. Critical Care Medicine. 2015 Jun. 43(6):1291-1325.

**LaPorta GA**. Whither biomechanics. Journal of Foot & Ankle Surgery. 2015 Jan-Feb. 54(1):1.

LaPorta GA, Nasser EM, Mulhern JL. Tibiocalcaneal arthrodesis in the high-risk foot. Journal of Foot & Ankle Surgery. 2014 Nov-Dec. 53(6):774-786.

Lee JJ, Vrabec TR, Baldassano VF Jr. Cancer-associated retinopathy with unusual retinal whitening. RETINAL Cases & Brief Reports. 2015. 9(1):21-24.

Mackeen AD, Schuster M, Berghella V. Suture versus staples for skin closure after cesarean: a metaanalysis. American Journal of Obstetrics & Gynecology. 2015 May. 212(5):621.e1-621.e10.

**Prickett KA**, **Ferringer TC**. What's eating you? Cutaneous larva migrans. Cutis. 2015 Mar. 95(3):126-128.

Rosenbaum BP, Kelly ML, Kshettry VR, **Weil RJ**. Neurologic disorders, in-hospital deaths, and years of potential life lost in the USA, 1988-2011. Journal of Clinical Neuroscience. 2014. Nov. 21(11):1874-1880.

Stevens DL, Bisno AL, Chambers HF, Dellinger EP, Goldstein EJ, Gorbach SL, Hirschmann JV, Kaplan SL, Montoya JG, **Wade JC** (Infectious Diseases Society of America). Practice guidelines for the diagnosis and management of skin and soft tissue infections: 2014 update by the Infectious Diseases Society of America. Clinical Infectious Diseases. 2014 Jul 15. 59(2):e10-e52.

Stevens DL, Bisno AL, Chambers HF,

Dellinger EP, Goldstein EJ, Gorbach SL, Hirschmann JV, Kaplan SL, Montoya JG, **Wade JC** (Infectious Diseases Society of America). Practice guidelines for the diagnosis and management of skin and soft tissue infections: 2014 update by the Infectious Diseases Society of America. Clinical Infectious Diseases. 2014 Jul 15. 59(2):147-159.

### September 2015 Publications

### Impact Factors of >10

Gordon SC, Lamerato LE, Rupp LB, Holmberg SD, Moorman AC, Spradling PR, Teshale E, Xu F, **Boscarino JA**, Vijayadeva V, Schmidt MA, Oja-Tebbe N, Lu M, for the CHeCS investigators. Prevalence of cirrhosis in hepatitis C patients in the Chronic Hepatitis Cohort Study (CHeCS): A retrospective and prospective observational study. American Journal of Gastroenterology. 2015 Aug; 110(8): 1169-1177. **IMPACT FACTOR 10.755** 

Hirsch AG, Xiaowei Y, Sundaresan A, Tan BK, Schleimer RP, Kern RC, Kennedy TL, Greene JS, Schwartz BS. Five-year risk of incident disease following a diagnosis of chronic rhinosinusitis. Allergy. 2015. Aug 31. [Epub ahead of print]. IMPACT FACTOR 11.48

### Others

Arterburn D, **Wood GC**, Theis MK, Westbrook EO, Anau J, **Rukstalis M**, **Boscarino JA**, **Daar Z**, Gerhard GS. Antipsychotic medications and extreme weight gain in two health systems. Obesity Research and Clinical Practice. 2015 Sep 8. [Epub ahead of print].

**Baber J**, **Kheyfets S**, **Sumfest J**. A rare case of neonatal alloimmune thrombocytopenia causing prolonged postcircumcision bleeding. Urology. 2015 Jun. 85(6):1474-1476.

**Bauch T, Vijayaraman P, Dandamudi G**, Ellenbogen K. Three-dimensional printing for in vivo visualization of his bundle pacing leads. American Journal of Cardiology. 2015 Aug 1. 116(3):485-486.

**Blankenship JC**, **Berger PB**. A radial resolution to a warfarin worry. Catheterization and Cardiovascular Interventions. 2015 Jan 1. 85(1):89-90.

**Boscarino, JA**, Hoffman SN, Han JJ. Opioid-use disorder among patients on long-term opioid therapy: Impact of final DSM-5 diagnostic criteria on prevalence and potential correlates. Substance Abuse and Rehabilitation. 2015 Aug; 6: 83-91.

**Boscarino JA**, Hoffman SN, **Pitcavage JM**, Urosevich TG, Mental health disorders and treatment seeking among veterans in non-VA facilities: Results and implications from the Veterans' Health Study. Military Behavioral Health. 2015. Sep 5. [Epub ahead of print].

Brezinski ME, **Harjai KJ**. Longitudinal necrotic shafts near TCFAs—a potential novel mechanism for plaque rupture to trigger ACS? International Journal of Cardiology. 2014 Dec 20. 177(3):738-741.

Christianson J, **Maeng D**, Abraham J, Scanlon DP, Alexander J, Mittler J, Finch M. What influences the awareness of physician quality information? Medicare & Medicaid Research Review. 2014. 42(2).

**Fanelli GC**, Fanelli DG. Fibular headbased posterolateral reconstruction of the knee combined with capsular shift procedure. Sports Medicine & Arthroscopy Review. 2015 Mar. 23(1):33-43.

Cioffi M, Vallespinos-Serrano M, Trabulo SM, Fernandez-Marcos PJ, **Firment AN**, Vazquez BN, Vieira CR, Mulero F, Camara JA, Cronin UP, Perez M, Soriano J, G Galvez B, Castells-Garcia A, Haage V, Raj D, Megias D, Hahn S, Serrano L, **Moon A**, Aicher A, Heeschen C. MiR-93 Controls Adiposity via Inhibition of Sirt7 and Tbx3. Cell Rep. 2015 Sep 8;12(10):1594-605. Epub 2015 Aug 28. Graham J, Irving J, Tang X, Sellers S, Crisp J, Horwitz D, Muehlenbachs L, Krupnick A, Carey D. Increased traffic accident rates associated with shale gas drilling in Pennsylvania. Accident Analysis and Prevention. 2015 Jan. 74:203-209.

#### Grant MP, Cavanaugh A, Breitwieser

**GE**. 14-3-3 proteins buffer intracellular calcium sensing receptors to constrain signaling. PLOS One. 2015. 10(8):e0136702.

#### Green JA, Cavanaugh KL.

Understanding the influence of educational attainment on kidney health and opportunities for improved care. Advances in Chronic Kidney Disease. 2015 Jan. 22(1):24-30.

Kirkpatrick BE, Riggs ER, Azzariti DR, Miller VR, Ledbetter DH\*, Miller DT, Rehm H, Martin CL, Faucett WA, ClinGen Resource. GenomeConnect: matchmaking between patients, clinical laboratories, and researchers to improve genomic knowledge. Human Mutation. 2015 Jul 16.

Konstantions NA, Thigpen JL, Tripodis Y, Dillon C, **Forster K**, Henault L, Quinn EK, Berger PB, Limdi NA, Hylek EM. Paroxysmal Atrial Fibrillation and the Hazards of Under-treatment. International Journal of Cardiology. 11 Sept 2015.

Maeng DD, Stewart WF, Yan X, Boscarino JA, et al. Use of electronic health records for early detection of high-cost low back pain patients. Pain Research & Management. 2015, Aug 20. [Epub ahead of print].

Mizrahi E, Suryadevara RS, Barn K, Boga G, Ali Akram MM, **Ismail Sayed I**, **Henry YM**, **Troup MA**, Berger PB. Impact of switching from prasugrel to clopidogrel shortly after a percutaneous coronary intervention without a loading dose of clopidogrel. Journal of Invasive Cardiology. 15 Sept 2015. [Epub ahead of print]

**Morgigno C**. The deception of alcohol. Journal of the American Academy of

Physician Assistants. 2014 Jun. 27(6):1-2.

**Murray MF**. Vascular Ehlers-Danlos syndrome, pixels, and high-definition clinical genomics. Genetics in Medicine. 2014 Dec. 16(12):867-868.

Nau C, Ellis H, Huang H, **Schwartz BS**, **Hirsch A**, **Bailey-Davis L**, Kress AM, Pollak J, Glass TA. Exploring the forest instead of the trees: An innovative method for defining obesogenic and obesoprotective environments. Health Place. 2015 Sept 18. [Epub ahead of print].

Olenginski TP, Maloney-Saxon G, Matzko CK, Mackiewicz K, Kirchner HL, Bengler A, Newman ED. Highrisk osteoporosis care with an organized, programmatic approach. Osteoporosis International. 2015 Feb. 26(2):801-810.

**Pfingstler LF**, **Hossler EW**. The skinny on psoriasis and weight loss. Surgery for Obesity & Related Diseases. 2014 Nov-Dec. 10(6):1159-1160.

Richardson AS, **Hossler EW**. Necrobiosis lipoidica diabeticorum. Cutis. 2015 May, 95(5):252, 265-266.

Sharma PS, Dandamudi G, Naperkoski A, Oren JW, Storm RH, Ellenbogen KA, Vijayaraman P. Permanent His-bundle pacing is feasible, safe, and superior to right ventricular pacing in routine clinical practice. Heart Rhythm. 2015 Feb. 12(2):305-312.

Sharp C, Plank A, Dove J, Woll N, Hunsinger M, Morgan A, Blansfield J, Shabahang M. The predictive value of application variables on the global rating of applicants to a general surgery residency program. Journal of Surgical Education. 2015 Jan-Feb. 72(1):148-155.

**Soares NS**, Baum RA, Frick KD. Improving Developmental-Behavioral Pediatric care workflow. Journal of Developmental & Behavioral Pediatrics. 2015 Jan. 36(1):45-52.

Stewart WF, Yan X, **Boscarino JA**, Maeng DD, Mardekian J, Sanchez RJ, Von Korff MR. Patterns of health care utilization for low back pain. Journal of Pain Research. 2015 Aug 12; 8: 523-535.

Xu F, Moorman AC, Tong X, Gordon SC, Rupp LB, Lu M, Teshale EH, Spradling PR, **Boscarino JA**, Trinacty CM, Schmidt MA, Holmberg SD; CHeCS Investigators. All-cause mortality and progression risks to hepatic decompensation and hepatocellular carcinoma in patients infected with hepatitis C. Clinical Infectious Diseases. 2015 Sep 28. [Epub ahead of print].

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