DMICE Tracks

From the Chair

This issue of the Department of Medical Informatics & Clinical Epidemiology (DMICE) newsletter will be coming out about the time of the start of the new academic year. While activity in DMICE is constantly cycling, the new academic year is always a time to reflect and anticipate the future.

For DMICE faculty, different projects come and go at all times throughout the year. The same holds for many students, who begin and end studies through our rolling admissions and graduation processes. Of course, students funded through our various training grants and new Clinical Informatics Fellowship (described in the lead article to the right) are one exception.

I am pleased to report that DMICE continues to do well, even in these uncertain times. The work we do is as important as ever. Everything the department does plays an essential role in contributing to healthcare reform and achieving the "triple aim" of healthcare: better health, better care, and lower cost. Whether it is
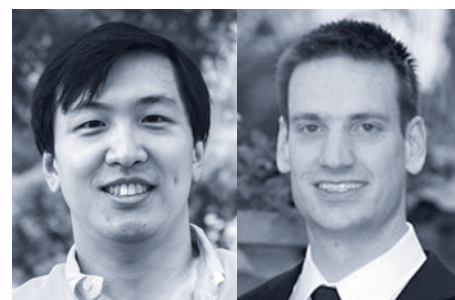
OHSU Launches Clinical Informatics Fellowship for Physicians

This summer marked the launching of OHSU's new Clinical Informatics Fellowship. This fellowship is for physicians seeking to become board-certified in the new medical subspecialty of clinical informatics. The program received Accreditation Council for Graduate Medical Education (ACGME) accreditation last year and admitted its first two fellows this July - James Morrison, M.D., who trained in interventional radiology, and Inho Kim, M.D., who is an emergency medicine physician.

As defined by ACGME, clinical informatics is "the subspecialty of all medical specialties that transforms health care by analyzing, designing, implementing, and evaluating information and communication systems to improve patient care, enhance access to care, advance individual and population health outcomes, and strengthen the clinician-patient relationship."

Clinical informatics was approved as a subspecialty of all medical specialties in 2011. Since 2013, physicians working in the field have been able to become board-certified

Inho Kim, M.D., (left) and James Morrison, M.D., (right) became the first two clinical informatics fellows at OHSU on July 1, 2015.

by the traditional "grandfathering" approach, where for the first five years, those with experience working in the field can be eligible to take the board certification exam. After 2018, however, the only pathway to board certification will be through completion of an ACGME-accredited fellowship. Many Clinical Informatics Fellowship graduates will likely obtain employment in the growing number of Chief Medical Information Officer (CMIO) or related positions in healthcare and vendor organizations.

It is important to note that this

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OHSU Awards Degrees to 37 Biomedical Informatics students in 2014-15

Thirty-seven students in the biomedical informatics graduate program received degrees in the 2014-15 academic year, as Oregon Health & Science University held its commencement ceremonies, including Convocation and the School of Medicine Hooding Ceremony, on June 5, 2015, at the Oregon Convention Center.

One highlight this year was that Tracy Edinger, N.D., M.C.R., M.S. '15, received the Outstanding Master's Thesis Award for the School of Medicine. She received the award at the School of Medicine Honors and Awards Ceremony on June 3, 2015. Edinger's thesis was an evaluation of clinical text segmentation to facilitate cohort retrieval.

Four students received a doctor of philosophy in biomedical informatics (listed with their dissertation topic):

Dian A. Chase
Dissertation: *The electronic health record: effects on clinician collaboration in primary care*

Paul Robert DeMuro
Dissertation: *A quality, benefit, cost, and financial framework for health information technology: a model for e-prescribing*

Steven Silas Williamson
Dissertation: *The user-centered design of a mobile app for distance caregivers of older adults that live in smart home environments*

Patricia Yao
Dissertation: *Texting for sexual health to American Indian/Alaska Native teens & young adults*

One student received a master of science in biomedical informatics (listed with her thesis topic):

Tracy Edinger
Thesis: *Evaluation of clinical text segmentation to facilitate cohort retrieval*

Fifteen students received a master of biomedical informatics:

Kshama Daphtary
Capstone: *Computerized clinical documentation in the pediatric intensive care unit: quality of notes and factors that affect quality*

Jemal A. Ebrahim
Capstone: *HIV management module*

Curtis Tony Ray Hampton
Capstone: *A synthesis paper on electronic health records and the barriers to their implementation in the neonatal and pediatric transport environment*

Amr A. Jamal
Capstone: *Smartphone use among medical residents: a cross sectional survey*

Peter J. Jenson
Capstone: *A review of machine learning methods for the detection of epistasis in complex disease*

Jemal Ebrahim (left), who received his M.B.I., and Eric Vinson (right), who received a graduate certificate, pose with Dr. Bill Hersh at commencement.

DMICE faculty enjoy a pre-commencement breakfast at the Convention Center. First row: Joan Ash, Kathryn Pyle, Bill Hersh, Tom Yackel. Second row: Karen Eden, Cindy Morris, Paul Gorman, Dian Chase.

OHSU faculty Drs. William Hersh (left) and Aaron Cohen (right) congratulate Dr. Tracy Edinger on her award for best master's thesis in the 2014-15 academic year.

Weiskopf Receives OCTRI Catalyst Award

Congratulations to assistant professor Nicole Weiskopf, Ph.D., who received one of four Catalyst awards from the OHSU Oregon Clinical and Translational Research Center for the 2015-16 fiscal year. Her research will focus on development and evaluation of an electronic health record data quality assessment tool to be used within the context of clinical research.

The Catalyst awards support novel, collaborative research initiatives, with institutional support provided by the School of Medicine Research Roadmap Initiative and the Office of the Senior Vice President for Research.

Weiskopf joined the DMICE faculty in September 2014, fresh from her doctoral work at the biomedical informatics program at Columbia University, where she focused on issues surrounding clinical research and the secondary use of electronic health record data, including workflows, data quality problems, and data collection practices. ■

Krystal Ariel Klein
Capstone: *Evaluation of risk communication in a mammography patient decision aid*

Hanumantha Rao Kolusu
Capstone: *Information overload and its effects on healthcare personnel*

Joel David Lafluer
Capstone: *The persistence of paper following ambulatory electronic health record implementation*

Thomas Patrick McCarrick
Capstone: *The scope and requirements for a web based transitions of care application*

Gwendolyn Brooke Moscoe
Capstone: *Beyond the binary: a proposal for uniform standards for gender identity and more descriptive sex classifications in electronic medical records*

Kristen Marie Sandersen
Capstone: *Acceleration of CDS/QI collaborative tools*

Brian C. Sandoval
Capstone: *Establishing a chronic disease management program in a Portland-based community clinic*

Catherine Lenz Schlechter
Capstone: *Meeting physicians' information needs in the EHR*

Jeffrey Scott Tripp
Capstone: *Creating an informatics coordinator assignment process for rapid improvement event projects at Salem Health*

AiLien Truong
Capstone: *Depression module development*

Seventeen students received a graduate certificate in biomedical informatics, a 24-credit-hour program to provide knowledge and skills in the application of information technology in health care:

Jean D'Agostino
Katharine Fultz Hollis
Jennifer Lynn Gabrielle
Joel Michael Scott Goode
Kimberley Anne Gray
Kevin M. Head
Christopher Jae Hoekstra
Yuanye Lu
Mark J. Meredith
Hanna Christine Nelson
Phuong T. Nguyen
Judit Olah
Edwin Aloysius Sequeira
Lazaro Nelson Sanchez-Pinto
Jonathan Edward Siff
Eric John Vinson
Brad Steven Walker ■

Kristin Sandersen (left) and Krystal Klein (right) both received M.B.I. degrees.

DMICE Faculty, Students and Alumni Present at 2015 OHSU Research Week

Thirty-two faculty, staff, students and alumni affiliated with the Department of Medical Informatics and Clinical Epidemiology gave oral presentations or presented posters at this year's OHSU Research Week, held May 4-8, 2015.

Postdoctoral fellow **Krystal Klein, Ph.D.**, received an award for being in the top 10 ranked oral presentations, at spot #6.

Oral presentations included:

A Bayesian Tensor Factorization Method to Predict Drug Response in Cancer Cell Lines
Nathan H. Lazar, Mehmet Gonen, **Shannon McWeeney, Lucia Carbone,** Adam Margolin, **Kemal Sonmez**

Key Findings from a Cognitive Work Analysis of Four Independent Practices: Applying Human Factors in Primary Care
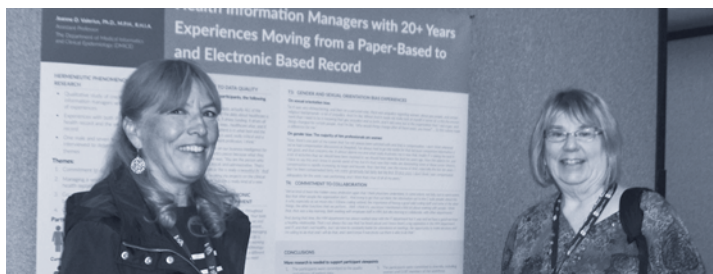**James L. McCormack**

Barriers to diabetes self-management education in a low-income, Spanish-speaking, Hispanic population
Jill Price Testerman, **Dian Chase**

Out-of-hospital pediatric airway management in the United States
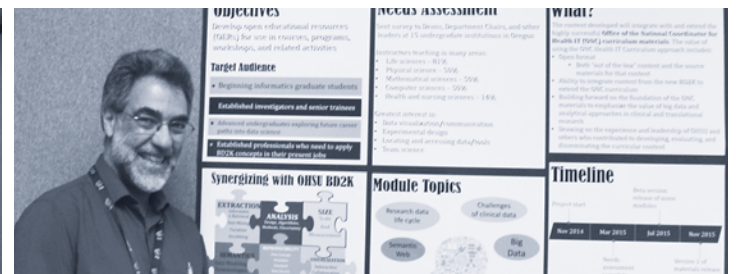Matt Hansen, William Lambert, **Jeanne-Marie Guise**, Craig Warden, N. Clay Mann, Henry Wang

Use of Red Lights and Sirens in Pediatric Prehospital Transport
Beech Stephen Burns, Matthew Hansen, Stacy Valenzuela, Caitlin Dickinson, Joshua Van Otterloo, Craig Warden, **Jeanne-Marie Guise**

CoChat: A Mobile Communications Tool for Primary Progressive Aphasia
Steven Bedrick, Kyle Gorman, Melanie Fried-Oken, Aimee Mooney, Noethe Glory, Betts Peters

Lessons from a Mixed-Methods Study of Risk Communication in a Screening Mammography Patient Decision Aid for Women in their Forties
Krystal A. Klein, Lindsey Watson, Latha R. Kalaga, **Karen B. Eden**
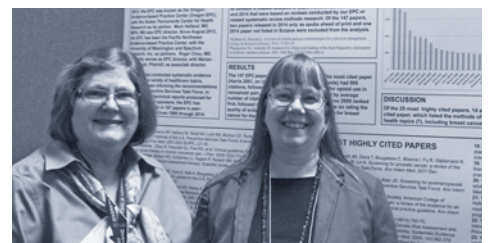

Diane Doctor, M.L.I.S., and Joanne Valerius, Ph.D.

William Hersh, M.D.

Ted Laderas, Ph.D. '14

Elaine Graham, M.L.S., and Kathryn Pyle, A.M.L.S., M.A.

Deborah Woodcock, M.B.A.

Posters presented at the event included:

The Urinary Microbiome: Does it Contribute to Urgency Urinary Incontinence?
Lisa Karstens, Mark Asquith, Patrick Stauffer, Sean Davin, **Shannon McWeeney**, Damien Fair, Rahel Nardos

A Citation Analysis of Peer-reviewed Papers from the Evidence-based Practice Center at Oregon Health & Science University, 1999-2014
Kathryn Pyle, Elaine Graham

Early Ovarian Development Computational Model for Mouse
Hannah Wear, **Annika Eriksson**, Karen Watanabe

Characterization of Rhesus Macaque Pre-Implantation Embryos Reveals Differences in Aneuploidy, Sub-Chromosomal Rearrangements, Gene Expression Patterns and Nuclear Structure at the Single Blastomere Level.
Brittany L. Daughtry, Jimi L. Rosenkrantz, Larry J. Wilhelm, Nash Redmayne, Kimberly A. Nevonen, **Lucia Carbone**, Shawn L. Chavez

Health Informaton Managers with

20+ Years Experiences Moving from a Paper-Based to and Electronic Based Record
Joanne Dorothy Valerius

Drawn Together: Enhancing Patient Engagement through Electronic Draw-and-Tell Conversation
Deborah Woodcock, Steven Williamson, Dana Womack, Michelle Hribar, Kate Fultz Hollis

Modeling of Clinical Workflows in Ophthalmology Using EHR Data
Michelle Rose Hribar, Sarah Read-Brown, Leah Reznick, Lorinna Lombardi, Mansi Parikh, **Thomas R. Yackel, Michael F. Chiang**

Improving Knowledge Discovery Through Development of a Big Data to Knowledge Skills Course
Melissa A. Haendel, David A. Dorr, William Hersh, Nicole A. Vasilevsky, **Shannon McWeeney**

Open Educational Resources for Big Data Science: Data Stewardship, Open Educational Resources
William R. Hersh, Melissa Haendel, Shannon McWeeney, Nicole Vasilevsky, **David A. Dorr**

Searching for on-demand patient cohorts from EHR text

Stephen Tze-Inn Wu, Steven Bedrick, William Hersh

Illuminating HNSCC: A Platform for Identification of New Therapeutics
Gabrielle Wise Choonoo, Xiaoming Ouyang, Samuel Higgins, Sophia Jeng, Robert Searles, **Shannon McWeeney**, Molly Kulesz-Martin

Prioritization of sequencing candidates in cases of rare and heterogeneous disease in Retinopathy of Prematurity
Ryan Michael Swan

Physicians using the EHR during initial patient visits: Qualitative analysis of perceptions and challenges
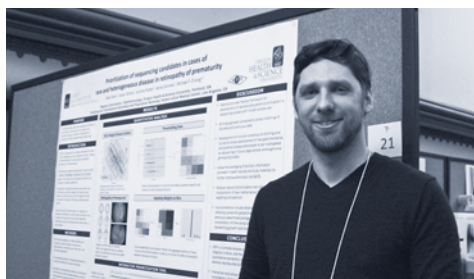**Julie W. Doberne**, Roheet Kakaday, Travis K. Redd, Carl O. Eriksson, Jeffrey A. Gold, **Vishnu Mohan, Joan S. Ash, Michael F. Chiang**

A Probabilistic Graphical Model for Interleukin-1 Signaling in Cancer
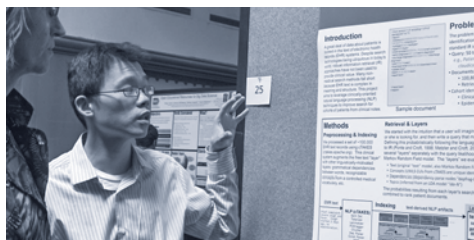**Aurora Blucher**, Anupriya Agarwal, Jeffrey Tyner, **Shannon McWeeney, Guanming Wu**

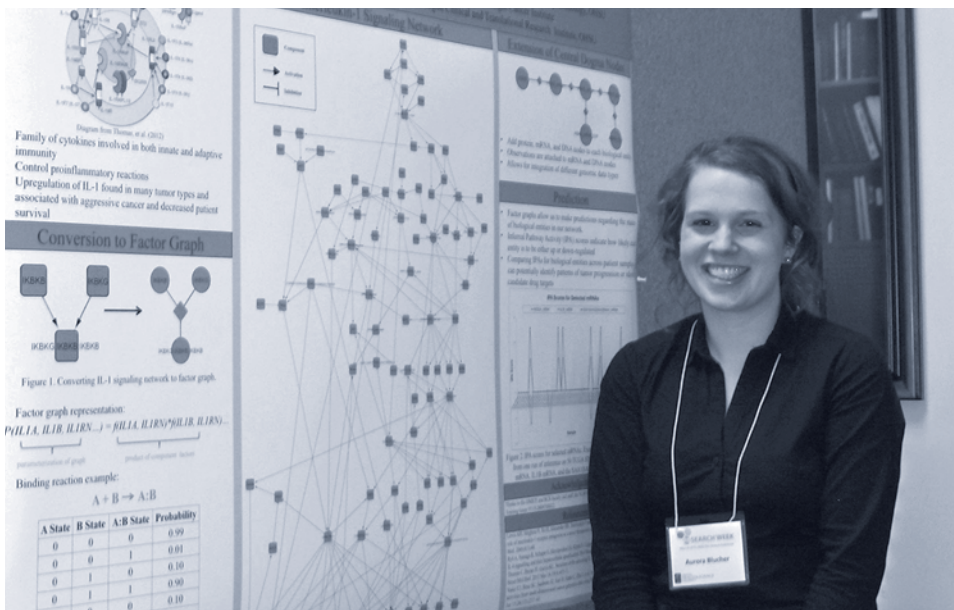*Identifcation of novel MAIT cell subtypes by CyTOF with nonlinear dimensionality reduction analysis*
Eisa Mahyari, Elyse Allen, David Lewinsohn, Marielle Gold ∎

Ph.D. student Ryan Swan

Stephen Wu, Ph.D. explains his research to Karen Eden, Ph.D.

Ph.D. student Aurora Blucher

Faculty Focus: Vishnu Mohan, M.D., M.B.I., MBCS, FACP

Dr. Vishnu Mohan is a clinical informaticist and primary faculty in DMICE. He is board certified in internal medicine and clinical informatics, and a graduate of the certificate and MBI programs at DMICE.

Mohan is a clinician, an educator, a researcher, and an avid gamer (not necessarily in that order, as he is quick to point out). He is also a *Qel.* That's Klingon for physician, as any hard-core Trekkie can tell you.

"For a while, every time I entered a patient's room," Mohan says, "instead of my usual 'how can I help you today?' I would start each visit with 'please state the nature of the medical emergency.' With the exception of a single medical student who was rotating with me at the time, no one else got it. Alas."

Mohan studied medicine at Maulana Azad Medical College, the University of Delhi.

"It was a weird experience because I entered medical school when I was a teenager," he says, "and to this day I think it was a little strange that I was legally allowed to prescribe morphine to patients when I wasn't even legally old enough to drink beer."

After finishing medical school, Mohan then decided to pursue further training in the US.

"On the one hand, I didn't really want to leave India," he says. "But on the other hand, there was a huge brain drain occurring at the time – almost everyone I knew from med school was emigrating either to the US or the UK. I grew up for a while in the UK, so it made more sense at the time to try and experience life in the US rather than return to Blighty. So I thought to myself, *'my 5-year mission is to explore strange new worlds, to seek out new life and new civilizations…'"*

And so he boldly went where no Mohan had gone before – to Pittsburgh, PA, to be precise, where he completed his residency in internal medicine, and started clinical practice.

While Mohan enjoyed life in Pittsburgh, his wife had other ideas, and he ended up in Portland working for Legacy Health, where he practiced internal medicine, was on the faculty of the internal medicine training program at Emanuel and Good Samaritan Medical Centers, precepted residents, and served as clerkship coordinator at Good Sam for medical students from OHSU and Western University of Health Sciences.

Mohan served as associate program director for medical informatics for the Legacy internal medicine training program before moving to OHSU. During that time he won multiple teaching awards, including the Dean L. McGinty M.D. Faculty Teaching Award in 2006 and the Best Outpatient Faculty Award for 2010.

Mohan was involved in the design and implementation of a comprehensive electronic health record while at Legacy Health, and his interest in clinical informatics prompted his enrollment in the clinical informatics program at OHSU in 2006, where he earned a certificate and then a MBI in 2009 *("damn it Jim, I'm an informatician, not just a doctor!").*

At the time, OHSU was awarded a rather large grant by the Office of the National Coordinator for Health IT (ONC) that set up the infrastructure to create curricular materials that

Vishnu Mohan, M.D., M.B.I. '09, MBCS, FACP

would be used by consortia of community colleges to build and deploy courses for entry level HIT workers to bolster the nation's clinical informatics workforce.

DMICE chair Dr. William Hersh convinced Mohan that this was a worthy challenge, and that *"the needs of the many outweigh the needs of the few,"* and so Mohan became a full-time assistant professor in DMICE in 2010. While his primary appointment at OHSU is with the Department of Medical Informatics and Clinical Epidemiology, his secondary appointments are in General Internal Medicine and Geriatrics and with the Division of Management.

Currently, Mohan teaches three courses in the biomedical informatics graduate program. In BMI 512, Clinical Information Systems, offered twice a year, he teaches both basic concepts and practical applications of clinical information systems, with emphasis on electronic health records.

The related BMI 513 course, which Mohan teaches twice a

year, is an electronic health record laboratory, which introduces students to an electronic health record and familiarizes them with the clinical informatics operating environment.

Finally, each winter term Mohan teaches BMI 560: Design and Evaluation in Health Informatics, a required course that provides an overview of the concepts, vocabularies, and strategies needed to design and evaluate projects in biomedical informatics.

Mohan also teaches in the OHSU-PSU Joint MBA in Healthcare Management program, where his course Healthcare IT for Managers is an informatics survey course designed to familiarize managers and future leaders in healthcare with IT-related concepts.

In addition to his clinical responsibilities at OHSU, Mohan continues as clinical faculty at Legacy Health.

With respect to research, Mohan is interested in how clinicians make decisions, how they interact with technology, and how technology influences their decision-making. He is also passionate about improving patient safety, and actively pursues research interests that espouse the safe delivery of healthcare. He was associated with Joan Ash's POET team in DMICE, and was involved, among other activities with the group, in developing the ONC-sponsored SAFER guides. He has also become increasingly interested in using high-fidelity simulation to improve the use and safety of electronic health records. With Jeffrey Gold, M.D., professor of medicine and director of the new state-of-the-art Simulation Center at OHSU, Mohan uses eye-tracking hardware and software to examine clinician interactions with the EHR interface.

Mohan also serves as associate director of the newly-instituted ACGME accredited clinical informatics subspecialty fellowship program, which began in July 2015. (See related story on page 1.)

"Throughout my professional career, I have always been a part of established medicine and graduate medical education," he says, "and yet now I find myself in a strangely unfamiliar place, at the *Final Frontier* of GME – clinical informatics is a brand new subspecialty, where the *Voyage Home* to familiar GME territory takes forever, and where *First Contact* with other (equally new) clinical informatics programs is few and far between. The only thing that we are afraid of as we chart this *Undiscovered Country* is the *Wrath of ~~Khan~~ ACGME.* And the challenge associated with standing up a brand new fellowship and clinical discipline is a big reason why this new voyage is so very exciting and interesting. *Qapla'!*"

In his spare time, Dr Mohan likes to travel. Like any other observant high-level night elf druid, he first spends some time at Moonglade and hangs out with his Cenarion Circle buddies before heading out to explore more exotic locations in Azeroth. ∎

Faculty/Staff Update

Awards and achievements

Thomas Yackel, M.D., M.P.H., M.S. '02, FACP, CPE, associate professor, has been appointed vice president and chief clinical integration officer for OHSU Healthcare and associate dean for the clinical practice in the OHSU School of Medicine. Yackel also recently earned the CPE certification from the Certifying Commission in Medical Management and started serving on the American Hospital Association's Committee on Clinical Leadership.

Professor and chair **William Hersh, M.D.**, received the 2014 HIMSS Physician IT Leadership award on April 14, 2015 during the HIMSS Annual Conference in Chicago. The award recognizes significant national leadership in the area of applying IT to the needs of physicians while serving the Society and/or the industry.

Roger Chou, M.D., professor, was mentioned in an article in the *New York Times* on March 16, 2015, entitled Too Much Cardiac Testing related to a guideline from the American College of Physicians (ACP) on routine cardiac testing of adults without symptoms. Chou was first author of the guideline for the High Value Care Task Force of the ACP.

Grants

Professor and chair **William Hersh, M.D.**, is principal investigator of an award from the Office of the National Coordinator for Health Information Technology to prepare an update and expansion of a health IT curriculum. **Drs. David Dorr, Karen Eden**, and **Vishnu Mohan** will also work on the project. The original health IT curriculum development project for ONC ran from 2010-13, and both grants were funded by the American Recovery and Reinvestment Act of 2009.

Dr. Hersh has also received a contract from the National Institute of Standards and Technology to conduct relevance judgments on clinical decision support for the TREC 2015 conference.

Joan Ash, Ph.D., professor, has received a contract from the Centers for Disease Control and Prevention related to using electronic health records and clinical decision support to enhance worker health.

The Pacific Northwest Evidence-based Practice Center (EPC) has

Ten Years of 10x10 ("Ten by Ten")

Last December marked the close of the tenth year of the 10x10 ("ten by ten") course, a partnership between DMICE and the American Medical Informatics Association (AMIA) that repackages the OHSU course, Introduction to Biomedical and Health Informatics (BMI 510), as a standalone course. The 10x10 version of the course adds an in-person session at its end that brings participants together to interact and present project work.
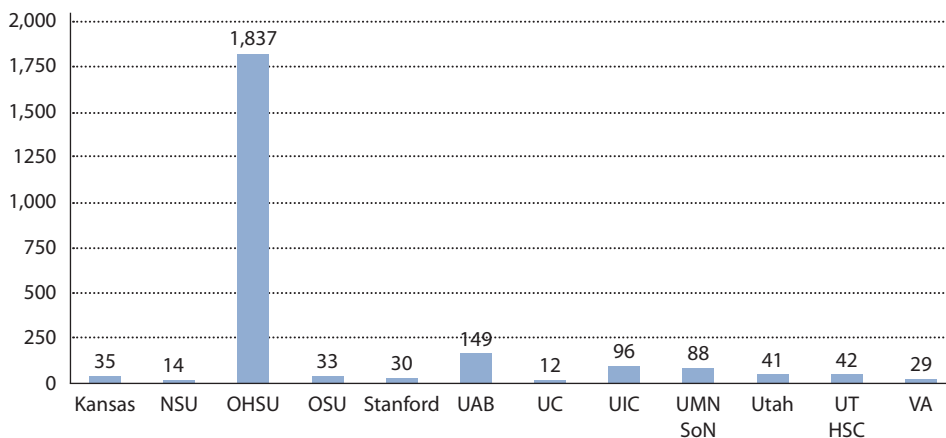
The AMIA 10x10 program was launched in 2005 when AMIA wanted to explore online educational offerings. When the cost for development of new materials was found by AMIA to be prohibitive, Dr. William Hersh, DMICE professor and chair, presented a proposal to the AMIA Board of Directors for adapting the introductory online course he had been teaching at OHSU since 1999. Since then-President of AMIA Dr. Charles Safran had been calling for one physician and one nurse in each of the 6,000 US hospitals to be trained in informatics, Dr. Hersh proposed the name 10x10, standing for "10,000 trained by 2010."

The OHSU course has been the flagship course of the AMIA 10x10 program, and by the end of 2010, a total of 999 people had completed it. Enrollment did not reach anywhere near that vaunted number of 10,000 by 2010, although probably could have, had that many people come forward, since distance learning is so scalable. After 2010, the course continued to be popular and in demand, so OHSU and AMIA continued to offer 10x10 and have done so to the present time. The course has been offered several times per year since it was launched in 2005.

Last year marked the tenth year that the course was offered, and by the end of 2014, some 1,837 people had completed the OHSU offering of 10x10. This included not only general offerings with AMIA, but those delivered to various partners, including the American College of Emergency Physicians, the Academy of Nutrition and Dietetics, the Mayo Clinic, the Centers for Disease Control and Prevention, the New York State Academy of Family Physicians, and others. The course has also had international appeal, with it being translated and then adapted to Latin America by colleagues at Hospital Italiano of Buenos Aires in

Faculty/Staff Update

recently received several awards to conduct systematic reviews. Professor and EPC director **Roger Chou, M.D.**, is principal investigator (PI) of a review on the use of hyaluronic acid for treatment of osteoarthritis, funded by Avalere Health.

Dr. Chou is also PI of an EPC project to produce systematic reviews for the Society of Nuclear Medicine and Molecular Imaging, with assistant professor **Amy Cantor, M.D., M.P.H.**, as co-investigator, and a project on non-muscle-invasive bladder cancer for the American Urological Association.

Working with the American Gastroenterological Association (AGA), **Dr. Chou** is also providing evidence support for an AGA guideline on management of Crohn's disease after surgical resection. Assistant professor **Shelley Selph, M.D., M.P.H.**, is a co-investigator.

The EPC is producing a technical brief on telehealth for the Agency for Healthcare Research and Quality, with Dr. **William Hersh** as PI and Drs. **Marian McDonagh, Annette Totten** and **Karen Eden** as co-investigators.

The EPC has just received its fifth cycle of funding for the Drug Effectiveness Review Project (DERP), with professor and EPC associate director **Marian McDonagh, Pharm.D.**, continuing as PI. DERP is a collaboration of United States Medicaid agencies from 13 states, including states as diverse as Montana and New York. States new to DERP this year are Tennessee and Texas. DERP commissions comparative effectiveness reviews from the EPC to inform decision-making about drugs that would be available to Medicaid recipients. The work began in 2003.

Assistant professor **Shelley Selph, M.D., M.P.H.**, is providing methodologic support services to the Paralyzed Veterans of America

All told, the OHSU offering of the 10x10 program has accounted for 76% of the 2,406 people who completed a 10x10 course. The chart shows the distribution of the institutions offering English versions of the course.

Student/Alumni News

Awards and achievements

The Asthma and Allergy Foundation of America (AAFA) recently appointed **Meryl Bloomrosen, M.B.I. '14, M.B.A.**, as Senior Vice President of Policy, Advocacy and Research.

Pre-doctoral student Nathan Lazar was selected as the Best Focused Paper Speaker for Day 2 of the 2015 National Library of Medicine Informatics Training Conference, held June 22-23, 2015, in Bethesda, MD. His talk was on Bayesian Tensor Factorization to Predict Drug Response in Cancer Cell Lines.

Patricia Yao, Ph.D. '15, was featured in an OHSU School of Medicine web site article as one of the 2015 graduates. **www.ohsu.edu/ xd/education/schools/school-of-medicine/news-and-events/meet-grad-students-2015.cfm**

Jobs/career changes/promotions

Everett Weiss, M.D., certificate '14, has been appointed chief medical information officer of Roswell Park Cancer Institute. In this role, he represents the interests of the clinical providers at Roswell Park on all clinical technology matters.

Paul DeMuro, J.D., M.B.I. '12, Ph.D., '15 is now Of Counsel with Broad and Cassel, Attorneys at Law, Fort Lauderdale FL.

David Gibbs, Ph.D. '12, is now a postdoctoral fellow with the Institute of Systems Biology in Seattle, WA.

Damian Borbolla, M.D., M.S. '12, has accepted a mentored postdoctoral fellowship in the Department of Biomedical Informatics at the University of Utah School of Medicine. The main goal of this program is to enable postdoctoral fellows to start developing an independent research career with the potential to transition into a tenure-track faculty position at the University of Utah.

Chris Tessier, M.D., certificate '10, has relocated to Portland to work as a urologist at the Portland VA Health Care System and OHSU. Dr. Tessier recently worked as a medical editor for an electronic health record product at Elsevier and continues to lead the quality improvement and patient safety department at the American Urological Association.

Marianne Outzen, M.S., O.T.R./L., C.H.T., M.B.I. '13, is now a clinical consultant for the western region with the Cerner Corporation. Outzen is also a PCORI clinician stakeholder reviewer, currently serving as a merit reviewer for the Clinical Data Research Networks, which will develop the capacity to conduct randomized comparative effectiveness studies using data from clinical practice in a large, defined population. These networks involve two or more healthcare systems, with plans to function as integrated research network.

Joshua Richardson, Ph.D. '11, has accepted a position at RTI, International in its Chicago office as a Research Health IT Scientist. Richardson will be collaborating with team members in business development and carrying out research to evaluate health IT's effects on health and healthcare delivery. His primary areas of interest in informatics are health information exchange, mHealth, and telehealth in the care for older adults.

Grants

Post-doctoral fellow Michelle Hriber, Ph.D., has received a K99/ R00 grant from the National Library of Medicine. Her research project is on modeling and optimization of clinical processes using EHR data.

Presentations and posters

James McCormack, Ph.D. '14, gave a presentation, Key Findings from a Cognitive Work Analysis of

Informatics Discovery Lab Partners with Knight Cardiovascular Institute

The Informatics Discovery Lab (IDL), part of the Department of Medical Informatics and Clinical Epidemiology, has successfully completed the first year of its partnership with the Knight Cardiovascular Institute (KCVI). IDL investigators are working with KCVI to expand their analytics capabilities to help improve care quality and outcomes related to cardiovascular disease. During the past year, the focus was on heart failure and American College of Cardiology (ACC) quality measures; in the coming year, the project will expand to other disease areas such as arrhythmia and will also enhance workflows to deliver analytics information to KCVI clinicians.

In other activities, the IDL is partnering with the Knight Cancer Institute (KCI) around their natural language processing (NLP) text mining strategy. Having helped KCI organize a multi-vendor evaluation and select a vendor, the IDL is now collaborating with KCI to apply the NLP technology to several pilot projects over the coming year, including one designed to increase clinical trial accruals.

The IDL was created to address important challenges facing health, health care and biomedical research that require informatics innovation as a key component. It is led by Aaron Cohen, M.D., M.S. '05, Director of Commercial Partnerships and Collaboration, with Deborah Woodcock, M.B.A., as program manager. ∎

Drs. William Hersh and Mark Helfand Celebrate 25 Years at OHSU

The honorees circa 1991: David Hickam., M.D., M.P.H., William Hersh, M.D., Sally Hersh, C.N.M., D.N.P., Lori Hedrick, Mark Helfand, M.D., M.P.H., M.S.

On July 1, 2015, OHSU and VA employees, family members and outside friends gathered to celebrate the 25th anniversary of the arrival of Drs. William Hersh and Mark Helfand at Oregon Health & Science University and the Pacific Northwest.

Their paths had crossed several times in the past. Both were in the same kindergarten class in Skokie, IL, and both graduated from medical school at the University of Illinois, Chicago, class of 1984.

In July 1990, fresh from a biomedical informatics fellowship at Harvard University, William Hersh joined the fledging biomedical informatics program at OHSU, which had started the previous year, as an assistant professor of medicine and a staff scientist in the BICC. (It would be six years before DMICE became a free-standing division in the School

Shannon McWeeney, Ph.D., (right) brought an unsuspecting William Hersh to the party.

Nicole Floyd (left) escorted Mark Helfand to the BICC Gallery where the anniversary celebration was held.

of Medicine and 13 years before it became a department.)

At the same time, Mark Helfand joined the Portland VA Medical Center as a staff physician and also had an appointment at OHSU as an assistant professor of medicine. He moved north from Stanford University, where he had been an internal medicine resident and then a fellow in health services research.

Over the next two and a half decades, both men have led the way to create nationally and internationally recognized programs within the two halves of DMICE.

Now professor and chair of DMICE, in the mid-1990s, Hersh spearheaded the move to create a graduate program in biomedical informatics, which he directs. He also serves as program director of the informatics training program, funded by the National Library of Medicine. Hersh has received several awards from the American Medical Informatics Association and others for educational innovation and has directed one of AMIA's 10X10 programs, now in its eleventh year.

Helfand, also a professor, became the first director of the Oregon Evidence-based Practice Center, one of about a dozen funded by the Agency for Healthcare Research and Quality, and served in that capacity until 2012.

He now directs the Scientific Resource Center, which supports the activities of AHRQ's Effective Healthcare Program and is based at the Portland VA Research Foundation; he also directs the coordinating center of the VA's Evidence-based Synthesis Program and US Cochrane West, a branch of the US Cochrane Center. Helfand served as editor-in-chief of *Medical Decision Making* from 2005-2012.

At the July celebration, past and present colleagues and friends delivered greetings and reminiscences of the arrival of these two physicians to Portland 25 years ago.

A special thank you to those who contributed to the planning of the event, helping at the event, photographing the event, and luring the unsuspecting honorees there: Anne Marshall, Andrea Ilg, Monica Garlough, Kathryn Pyle, Dawn Baker, Lynne Schwabe, Shannon McWeeney, Elaine Graham, Paul Gorman, Joan Ash, and Aster Devi and Nicole Floyd, from the Portland VA. ■

Scores of OHSU and VA employees, family and friends gathered to celebrate the anniversary.

Andrea Ilg listens to the tributes.

Paul Gorman, M.D., remembers Drs. Hersh and Helfand in their early days at OHSU.

Hurricanes and Informatics?
How DMICE Faculty and Staff Provided Assistance in the Aftermath of Hurricane Katrina

Ten years ago, on August 29, 2005, Hurricane Katrina struck the Gulf Coast and the city of New Orleans, displacing hundreds of thousands of people from their homes and causing an estimated $100 billion in damage. Two Minnesotans, now affiliated with the OHSU Department of Medical Informatics and Clinical Epidemiology, used their informatics skills to help in the aftermath of the storm.

Now assistant professor of medical informatics and clinical epidemiology, Joanne Valerius, Ph.D., went to Louisiana as a representative of the College of St. Catherine Minnesota, where she was an associate professor and chair of Information Management Department at the time. Valerius volunteered to work with a team from the College and spent two weeks working with the Public Health Department in Lafayette to develop a shortened version of the CDC's paper-based medical documentation form. She was able to turn a 7-page document into a back-to-back one page document. One nurse explained they were trying to concentrate on caring for patients rather than lengthy documentation. In addition, Valerius was able to work with a local health information management program to help with coding the medical records that were collected.

Carolyn Petersen, M.B.I. '09, M.S., a member of Mayo Clinic's Internet team, traveled to Louisiana in the first of four Mayo teams that would serve the region for nearly two months. Petersen, who is also a DMICE teaching assistant, coordinated efforts by local and national media to cover the team's work and assisted Mayo team leaders with logistics planning.

The entire team was made up of volunteers from Mayo Clinic, the University of Minnesota, the College of St. Catherine, and Northwest Medical Teams. The team slept backstage at the Heymann Center, a performing arts and convention center that provided temporary housing for people displaced by Hurricane Katrina. The team worked with the Public Health Department in a massive vaccination event at the Cajundome in Lafayette, supported local public health staff in re-establishing region clinics, and provided medical care via a fleet of mobile medical units that traveled throughout southern Louisiana.

Shortly after Hurricane Katrina hit, a second storm, Hurricane Rita, landed in the same area. Close to 100 team members were evacuated to a children's camp in Jackson, Mississippi, until the storm passed, then returned to Lafayette to continue their mission. The true heroes of this situation were the many survivors that expressed gratitude to God for the survival of their families. ∎

Faculty/Staff Update

as they prepare a clinical guideline on development of cardiometabolic disorders. Along with Dr. Selph as PI, **Devan Kansagara, M.D., M.C.R.**, is a co-investigator on the project.

David Dorr, M.D., M.S., associate professor, is a co-investigator on two new grants from the Agency for Healthcare Research and Quality: the Northwest Coalition for Primary Care Practice Support, and Clinical Information Needs of CHCs for HIT (CLINCH-IT).

Presentations and posters

Professor and chair **William Hersh, M.D.**, gave several recent presentations:

Informatics Year in Review (with **Dr. Joan Ash**), American Medical Informatics Association Annual Symposium 2014, Washington, D.C., November 18, 2014.

What Workforce is Needed for Large-Scale Informatics Projects?, HIMSS Middle East Integrated Health Innovations Conference, Dubai, UAE, December 17, 2014.

Big Data in Healthcare and Biomedicine: Opportunities and Challenges, New Relic Future Talks, Portland, OR, March 9, 2015.

Competencies in Clinical Informatics for Informaticians and Healthcare Professionals, Applied Clinical Informatics Conference, University of Arizona College of Medicine Phoenix, Phoenix, AZ, March 13, 2015.

Caveats and Recommendations for Use of Operational Electronic Health Record Data for Research and Quality Improvement, Geisinger Health System, Danville, PA, October 20, 2014, and Carolina Health Informatics Program, University of North Carolina, Chapel Hill, NC, March 5, 2015.

Dr. Hersh also participated in several panels:

Informatics without Borders:

International Outreach of US-based Training Programs, AMIA 2014 Annual Symposium, Washington, D.C., November 17, 2014.

Evolving Career Landscapes in Biomedical and Health Informatics, AMIA 2014 Annual Symposium, Washington, D.C., November 17, 2014.

Thomas Yackel, M.D., M.P.H., M.S. '02, FACP, CPE, associate professor, gave a talk on Connecting Population Health and Value Based Care in the Clinical Enterprise at the OHSU Department of Medicine Grand Rounds, March 17, 2015. He also spoke on exploding your focus: the effective use of Medline for searching the medical literature at the OHSU Department of Emergency Medicine Grand Rounds, December 3, 2014.

As director of the Portland Patient Safety Center of Inquiry at the VA Portland Health Care System, assistant professor **Blake Lesselroth, M.D., M.B.I. '05**, participated in the release of a webcast addressing topic of medication reconciliation. "Medication Reconciliation Myth #2: It's Not My Job" is at https://www.youtube.com/watch?v=U3qiZGB9yUg

Dr. Lesselroth was also co-author of a poster on usability evaluation of medication review software for self-service kiosks, presented at the Human Factors and Ergonomics in Health Care: Improving the Outcomes conference, held in Baltimore, MD, April 26-29, 2015.

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DMICE Faculty Paul Gorman, Heidi Nelson Appointed to Leadership Positions within School of Medicine

Two DMICE senior faculty members have added leadership positions within the School of Medicine to their work at OHSU. Paul Gorman, M.D., professor, was appointed assistant dean for rural medical education while Heidi Nelson, M.D., M.P.H., research professor, has been appointed director of scholarly projects for the M.D. program.

In this new leadership position within the Dean's Office, which became effective July 1, 2015, Dr. Gorman will oversee existing programs and help develop innovative new programs in collaboration with rural partners that help meet the need

Heidi Nelson, M.D., M.P.H., director of scholarly projects.

Paul Gorman, M.D., assistant dean, rural medical education.

> "Scholarly Projects provide a unique inquiry-based experience…that will ideally create physicians who can ask and answer essential medical questions."
>
> — Heidi Nelson, M.D., M.P.H.

for a diverse, highly trained workforce for rural health care.

Working closely with community groups, students, preceptors, OHSU faculty involved in rural medicine, and others, Dr. Gorman will lead efforts within the M.D. program to develop and expand rural medical education and interprofessional education opportunities, integrating these with the evolving OHSU rural campus and the new OHSU *YOUR M.D.* curriculum, instituted in 2014. A key element of this program will be the focus on supporting a robust regional faculty as part of the OHSU community, with professional development and access to OHSU resources.

"I am honored and excited by this opportunity," said Dr. Gorman.

"I firmly believe in embedded rural education programs as a critical way to ensure that students understand the rewards and realities of rural practice, the breadth of rural health care, and the deep connection to communities with their unique needs and resources. This knowledge will help them serve rural Oregonians, whether they ultimately provide direct care as rural physicians or provide support and consultation to rural colleagues."

Dr. Nelson's position, which began in February 2015, is also a new one within the School of Medicine. As part of the *YOUR M.D.* curriculum, medical students now complete a mentored scholarly project. By conducting an in-depth investigation of a topic of interest, a medical

student will build skills in thinking critically about complex clinical problems as well as identifying, defining and answering important questions relevant to clinical practice and healthcare delivery. Students will also understand and apply principles of professionalism, ethics, communication, and collaboration while pursuing their projects. Each May students will present their scholarly projects to the university community. Project mentors provide support throughout the process.

Dr. Nelson provides oversight for all aspects of the scholarly projects program, including the development of student guidelines and requirements and overseeing a team of faculty leads and mentors. She also teaches a proposal development course on preparing project proposals for individual student projects.

"Scholarly Projects provides a unique inquiry-based experience for medical students that will ideally create physicians who can ask and answer essential medical questions to advance healthcare," Nelson said. ■

Faculty/Staff Update

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10x10

Argentina as well as being offered in its English version, with some local content and perspective added, in collaboration with Gateway Consulting in Singapore. Additional international offerings have been sponsored by King Saud University of Saudi Arabia and the Israeli Ministry of Health.

The 10x10 course has also been valuable for our informatics educational program at OHSU. As the course is a replication of our introductory course in our graduate program, those completing the OHSU 10x10 course can optionally take the final exam for BMI 510 and then be eligible for graduate credit at OHSU (if they are eligible for graduate study, i.e., have a bachelor's degree). About half of the people completing the course have taken and passed the final exam, with about half of those (25% of total) enrolling in either our Graduate Certificate or Master of Biomedical Informatics program. Because the OHSU graduate program has a "building block" structure, where what is done at lower levels can be applied upward, there is one individual who even started in the 10x10 course and progressed all the way to obtain a Doctor of Philosophy (Ph.D.) from our program.

The 10x10 program will continue as long as there is interest from individuals who want to take it. Given the continued need for individuals with expertise in informatics, along with rewarding careers for them to pursue in the field, the course will likely continue for a long time. ■

Student/Alumni Update

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Four Independent Practices: Applying Human Factors in Primary Care, at the National Collaborative for Improving Primary Care Through Industrial and Systems Engineering (I-PrACTISE), Madison, WI, March 13-14, 2015.

Paul DeMuro, J.D., M.B.I. '12, Ph.D., '15, gave several presentations recently: Co-Presenter, The Latest in P4P Arrangements: How to Remain Compliant, California Society of Health Attorneys 2015 Annual Meeting and Spring Seminar, Huntington Beach, CA, April 19, 2015. Panelist, The 4 C's of The Changing Provider-Payer Relationship Post ACA, 16th Annual ABA HLS Emerging Issues in Healthcare Law, Lake Buena Vista, FL, March 5, 2015. Panelist, Data Governance for Research and Clinical Care, American Medical Informatics Association 2014 Annual Symposium, Washington, D.C., November 16-19, 2014. Panelist, Patent Health Records (PHRs), Patient Access to Their Records/Medical Information and Challenges, American Medical Informatics Association 2014 Annual Symposium, Washington, D.C., November 16-19, 2014. Co-Presenter, Clinical Integration, Aligned Incentives, and New Payment Models, Oregon State Bar Health Law Section Conference, Sunriver, OR, October 24, 2014. Panelist, mHealth: Don't Forget All the Stakeholders in the Business Case, Medicine 2.0: Social Media, Mobile Apps, and Internet/Web 2.0 in Health, Medicine and Biomedical Research Medicine 2.0 '14, Malaga, Spain, October 9-10, 2014.

Carolyn Petersen, M.B.I. '09, M.S., was member of a panel, "mHealth: don't forget all the stakeholders in the business case," at Med 2.0, Malaga, Spain, October 2014. She was also a panel member of "Patient health records (PHRs), patient access to their records/medical information: issues and challenges," at the American Medical Informatics Association Annual Meeting, Washington, DC, November 2014.

Publications

Paul DeMuro, J.D., M.B.I. '12, Ph.D., '15 had several recent publications: Value-Based Purchasing Using Health Information Technology – The View from South Florida, *The Lund Report,* February 2015. Co-Author, Legal and Regulatory Considerations Associated with Use of Patient-Generated Health Data from Social Media and Mobile Health (mHealth) Devices, *Applied Clinical Informatics,* January 4, 2015;6:16-26. Opportunity Knocks for Mobile Health Innovations, *The Puget Sound Business Journal,* November 6, 2014. Predictive Analytics—The Future of Health Care?, *The Lund Report,* November 13, 2014.

Carolyn Petersen, M.B.I. '09, M.S., and Paul DeMuro, J.D., M.B.I. '12, Ph.D. '15, were co-authors of: Petersen C, DeMuro PR. Legal and regulatory considerations associated with use of patient-generated health data from social media and mobile health (mHealth) devices. *Appl Clin Inform* 2015;6:16-26. ∎

Fellowship

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clinical informatics fellowship is an addition to the family of informatics educational offerings by OHSU and does not replace any existing programs. OHSU will continue to have its graduate program (graduate certificate, two master's degrees, and Ph.D. degree) as well as its other research fellowships, including the flagship program funded by the National Library of Medicine. The student population will continue to include not only physicians, but also those from other healthcare professions, information technology, and a wide variety of other fields. Job opportunities across the biomedical and health informatics continue to be strong and well-compensated.

The Clinical Informatics Fellowship is structured more like a traditional clinical fellowship than the graduate educational program model of our other offerings. Fellows work through various rotations in different healthcare settings, not only at OHSU Hospital but also the VA Portland Health Care System. They also take classes in the graduate program that will provide them the knowledge base of the field and prepare them for the board certification exam at the end of their fellowship. The program Web site describes the curriculum and other activities in the fellowship (http://www.ohsu.edu/CIFellowship).

OHSU was the third program in the country to receive accreditation. Several other programs have since achieved accreditation, and many of them are using OHSU distance learning course materials for the didactic portion of their programs. (Over the last year, fellows in programs including Stanford Packard Children's Hospital, the University of Arizona, Children's Hospital of Philadelphia, and Indiana University have taken biomedical informatics courses from OHSU.)

Over the past two years, seven OHSU faculty physicians became board-certified in the new clinical informatics subspecialty, including the Program Director (William Hersh, M.D.) and two Associate Program Directors (Vishnu Mohan, M.D., M.B.I. '09; Thomas Yackel, M.D., M.S.'02, M.P.H.). Other DMICE faculty who have become board-certified include Eilis Boudreau, M.D., Ph.D.; Michael Chiang, M.D., M.S.; Blake Lesselroth, M.D., M.B.I. '05; and Michael Lieberman, M.D., M.S '03. ∎

From the Chair

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the informatics program advancing the use of data analytics in healthcare organizations and biomedical research or the Evidence-Based Practice Center (EPC) generating better evidence to guide care and policy, DMICE leads the way through its research, education, and service missions.

A number of activities are continuing to go strong. The EPC has received a substantial number of "task orders" and contracts, including some from professional societies, to carry out systematic reviews on a variety of topics. Several recent topics have crossed over into the informatics side of the department, including a recently completed evidence report on health information exchange and an ongoing technical brief on telehealth.

Another important activity is the Informatics Discovery Lab (IDL). Based on a growing need for collaboration among academia, industry, healthcare delivery organizations, public health agencies, and others, the IDL will be a collaborative environment where students, teachers, and researchers, as well as representatives from healthcare delivery organizations, industry, and philanthropy, can partner in a variety of activities. We are developing relationships with other units within OHSU as well as companies and are currently working with the Knight Cardiovascular Institute.

We are also planning for the future by recruiting new faculty. Both Nicole Weiskopf, Ph.D., on the informatics side and Shelley Selph, M.D., M.P.H., working for the EPC, have joined the DMICE faculty in the past year.

Of course, all this success does not mean we do not have challenges before us. We have always been successful at carrying our core mission, and like all successful organizations, we will need to adapt to new realities. Going forward, however, we will need to be more creative and resourceful as funding for research and training becomes tighter. Although we are a mission-driven organization, we also need to meet the financial sustainability that the university wants to see in all its programs. DMICE has weathered challenges before, and I am confident we will adapt to this one.

Part of our funding diversification involves philanthropy. We hope we can engage our colleagues, friends, and alumni to invest in DMICE. One major use of gift funds will be for our students. We hope to increase the resources for student scholarships and for activities they can undertake, such travel to meetings or career development activities. Gift funds can also provide needed investment in faculty to pursue new research and other areas of work. A form for giving is printed in this newsletter, or you can make your gift online at www.ohsu.edu/dmice/giving.

I remain optimistic for DMICE and the value that we bring to OHSU, the nation, and the world. Discovering and applying new information and tools to use it will be our critical contribution going forward. I hope all students, faculty, staff, and supporters of DMICE will contribute to that mission going forward. ▪

DMICE Students Compete in Finals of 2015 AMIA Student Design Challenge

Two teams of students in the DMICE biomedical informatics program have made it to the "final four" in the third annual student design challenge of the American Medical Informatics Association (AMIA).

With the theme "The Human Side of Big Data – Facilitating Human-Data Interaction," the 2015 Challenge invited submissions that focus on novel and original ways to facilitate engagement between humans and computing data-analytic systems.

The first DMICE student team, comprised of Ashley Choi, Benjamin Cordier, Prerna Das, Ph.D., and Jason Li, M.S., will present on "Take a Breather: Empowering Adherence & Patient Centered Research through Interactive Data Visualization, Social Engagement, & Gamification in Patients with Sleep Apnea."

The second team's project is "Learning from the Data: Exploring a Hepatocellular Carcinoma Registry Using Visual Analytics to Improve Multidisciplinary Clinical Decision-Making." Team members include Michelle Hribar, Ph.D., L. Nelson Sanchez-Pinto, M.D., Kate Fultz Hollis, M.S., Gene Ren, and Deborah Woodcock, M.B.A.

The top four teams will give oral presentations on Tuesday, November 17, 2015, as part of the AMIA 2015 Annual Symposium, to be held in San Francisco, CA.

In 2014, the one OHSU team that entered the Student Design Challenge took first place with its prototype of a mobile app that captures children's drawing and accompanying narratives to better facilitate child-provider communication. ▪

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Faculty/Staff Update

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DMICE Tracks

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