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DMICE Tracks

From the Chair

Welcome to Issue 2 of DMICE Tracks, the newsletter of the OHSU Department of Medical Informatics and Clinical Epidemiology in the School of Medicine. I am pleased to report that despite the troubled economy and challenging financial situations of both the state and OHSU, DMICE continues to thrive.



These are exciting times for both fields that comprise the department. On the informatics side, Tommy Thompson, Secretary of Health and Human Services and cabinet member, introduced the "Decade of Health Information Technology" this summer. The centerpiece of the announcement was a plan to improve health care safety and quality by increasing the use of electronic health records, promoting health information exchanges that share clinical data securely across traditional business boundaries, and empowering patients through personal health records. I am pleased to report that health information technology is one of the few truly bipartisan issues in this election year,

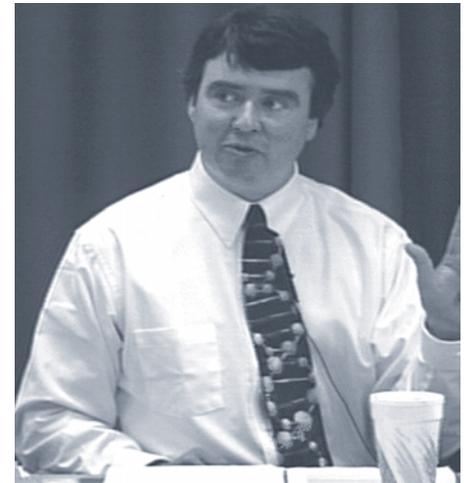
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DMICE Offers Bioinformatics Skills Development Courses

Bioinformatics, a discipline that combines informatics, computer science and biology, has become a hot career path in the last decade. With complex projects such as the Human Genome Project, biomedical researchers need to store, retrieve, and analyze large datasets. A report to the National Science and Technology Council six years ago claimed that bioinformatics will be indispensable for the advancement of science in the 21st century. The report authors issued a call for training and education in biomedical informatics.

The Department of Medical Informatics and Clinical Epidemiology has answered that call. Five courses in the graduate program provide training in bioinformatics. Taught by Christopher Dubay, Ph.D., assistant professor of medical informatics and clinical epidemiology, the courses range from a survey course to systems development.

Dubay teaches Computers in Bioscience (BMI 571) in the fall, which provides an overview of the field from the Human Genome Project to proteomics, with a focus on emerging



Christopher Dubay, Ph.D.

tools and trends in the analysis of biomedical research data. Participants complete a project in the course, many of which are proposed by local researchers and represent important research questions currently studied in OHSU biomedical laboratories. The course also is offered via videoconferencing (using Polycom) live on the West Campus, and is digitally videotaped and offered for distance learning students.

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DMICE Staff Help ONPRC Get a GRIP

The Oregon National Primate Research Center has established a Genetics Resource and Informatics Program, or GRIP, to aid in the application of genetic analysis techniques both by researchers in their animal models studies and by animal resource managers in their maintenance of animal colonies. Directed by Christopher Dubay, Ph.D., assistant professor of medical informatics and clinical epidemiology, the GRIP is the vision of ONPRC director M. Susan Smith, Ph.D. Smith has championed the creation of a genetics resource to further the primate center's research and management goals and to improve the sharing of genetic information with similar centers.

As chair of the GRIP steering committee, Sergio Ojeda, D.V.M., is helping direct the GRIP focus on integration of genetic information with data on gene and protein expression to deliver biological models of animal disease and health. This integrative approach is known as systems biology, where models predict biological results that are compared to actual experimental results, and the models are then refined in iterations to match the data.

Three former DMICE students are working with the GRIP. Chansamone Khouangsathiene, M.S., a recent graduate, manages GRIP interactions with the animal resource managers and designs information systems to provide users with genetic data. Carlo Pearson, a DMICE student, works to implement these information systems. Pearson replaces Daryl Morris, another DMICE student who recently left the GRIP to pursue a Ph.D. in biostatistics at the University of Washington.

The GRIP has been a major force supporting the integration of genetic

Students Successfully Complete Graduate Program in Biomedical Informatics

The Biomedical Informatics graduate program has experienced another successful year. At the Oregon Health & Science University graduation on June 6, 2004, 26 students were recognized as completing either their Master of Science in Biomedical Informatics, Master of Biomedical Informatics or graduate certificate in Biomedical Informatics. This was the largest graduating class yet. To date, 91 students have graduated from our program. Congratulations to the following on a job well done.

Master of Science in Biomedical Informatics

Nicholas Anderson
Pramod Jacob
Samone Khouangsathiene
John Perrine
Dat Tran
Jianji Yang

Master of Biomedical Informatics

Noorullah Akhtar
Christopher Andon
Miller Batson
Gregory Fraser
Alicia Graves
Kevin Jorgensen
Manasi Malvankar
Rock Turk

Graduate Certificate in Biomedical Informatics

Leslie Coerper
Sarah Corley
Gregory Forzley
Roy Gill
Mary Langdon
Monte Masten
Paul Parks
Margaret Sundre
Harry (Duke) Vandervort
Amy Wang
Keith Woeltje
Sandra Yee

Thesis and capstone projects from our MS and MBI students have been posted to our Web site. To see the types of projects our students completed, go to: www.ohsu.edu/dmice/people/alumni

data with the ONPRC central animal database: the Integrated Research Information System, a 30-year longitudinal electronic medical record for ONPRC animals. The medical informatics skills of GRIP staff have been key in developing genetically informed views into the IRIS data, and in mining the combined data for results providing insight into genotype/phenotype correlations.

For more information on the GRIP, contact Dubay at dubaayc@ohsu.edu.

More Information

Not surprisingly, the best source of information for the Department of Medical Informatics and Clinical Epidemiology is our Web site, which can be found at www.ohsu.edu/dmice. The site features a wealth of information about our research and educational programs.

Master of Clinical Research Approved as New OHSU Degree

The Human Investigations Program, housed in DMICE, learned in July that the OHSU Masters of Clinical Research degree received approval from the Oregon University System. Directed by DMICE vice-chair, Cynthia Morris, Ph.D., M.P.H., HIP trains clinicians to conduct patient-oriented research. About half of the trainees are junior faculty and half are clinical fellows.



Cynthia Morris,
Ph.D., M.P.H.,

Students who have taken at least one year of HIP can apply for the MCR program, which will begin accepting students this fall. To receive this degree, students complete the entire HIP curriculum, a mentored capstone project and 22 credits or more through the OHSU Public Health, Biomedical Informatics or other graduate programs.

The goal of the MCR, a non-thesis degree, is to provide a more in-depth education in clinical research than the HIP course and to enable faculty and fellows to move into an independent stage of clinical research.

Since its start in 2001, the Human Investigations Program, a K30 grant funded by the National Institutes of Health, has enrolled 86 students with 24 successfully completing the program to date. An additional 42 students have participated in coursework as non-degree students. This year there were 58 applicants to the program, 27 of which will enter the certificate track. These students can potentially apply for the MCR track after one year. Many HIP students have successfully received federal funding and published their research in peer-reviewed journals.

Faculty throughout the university teach HIP courses, including DMICE faculty William Hersh, M.D., Michelle Berlin, M.D., M.P.H., and Mark Helfand, M.D., M.P.H. The program manager is Karen McCracken, B.A., B.S.N.

Bioinformatics Skills Development Courses

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An accompanying laboratory class (BMI 572) provides hands-on training for students in the use of the bioinformatics program suite EM-BOSS and the associated sequence retrieval system being hosted at the OHSU high-performance computing center. Students in this class learn to use core bioinformatics programs to analyze biosequences.

The winter term course, Topics in Bioinformatics (BMI 573), offers students a chance to delve deeper into the fields and includes a bioinformatics journal club to discuss current litera-

ture of the field. In another winter course, Protocols in Bioinformatics (BMI 574), students learn to design and run bioinformatics protocols in a computer laboratory environment.

The spring brings Bioinformatics System Development (BMI 575), a course where students learn best practices for designing and developing bioinformatics tools and systems.

Dubay received his Ph.D. in medical genetics from OHSU and did postdoctoral research at the CEPH Institute in Paris and the Institute of Molecular Medicine at the University of Oxford in England.

Complete syllabi for all courses are available at medir.ohsu.edu/~bioinf/.

Helfand Becomes Medical Decision Making Editor

Medical Decision Making, a peer-reviewed journal sponsored by the Society of Medical Decision Making, moved its editorial office to DMICE in July as Mark Helfand, M.D., M.P.H., professor of medicine and medical informatics and clinical epidemiology, became the journal's sixth editor-in-chief.

Published bimonthly by Sage, MDM is devoted to the theory and practice of medical decision making and has become increasingly influential as a rigorous source of important new knowledge, both clinical and methodological.

In 2003 MDM was ranked third in impact factor among informatics journals and 12th among health care sciences and services journals. It was first among informatics journals and seventh among health care sciences and services journals in 2002. Impact factor is the total number of citations made in that year for articles published in two previous years divided by the number of citable articles published in these years.



Mark Helfand,
M.D., M.P.H.

Other DMICE faculty working with the journal include Kathryn Pyle Krages, AMLS, M.A., who serves as editorial manager, and William R. Hersh, M.D., DMICE professor and chair, who sits on the editorial board.

This is the second time the journal has based its editorial office within medical informatics at OHSU. J. Robert Beck, M.D., the first BICC director, edited *Medical Decision Making* from 1989-1992.

Faculty Highlight: Dr. Richard Appleyard

Faculty with an interest in medical informatics can be found throughout the OHSU campus. Richard Appleyard, Ph.D., who holds a joint appointment as assistant professor of medical informatics and clinical epidemiology, serves as director of disability informatics within the Oregon Institute of Disability and Development, the research and mainly grant-funded branch of the Child Development and Rehabilitation Center.



*Richard Appleyard,
Ph.D.*

Appleyard spearheads efforts in the development of novel applications of information technology as it relates to disabilities. His work involves establishing a grant-funded program to advance knowledge of the Web and other forms of information technology in support of people with various abilities and disabilities.

Appleyard read chemistry at Exeter College, Oxford University, before

moving to the United States with his advisor to complete a Ph.D. in biochemistry/biophysics at Washington State University. A strong interest in computers since high school, coupled with self-taught systems administration necessary at graduate school, led him to a two-year fellowship in medical informatics at OHSU, studying how general users access health and medical information on the Internet. He then spent five years as the OHSU Web services manager within the Information Technology Group, where he coordinated and planned the Web infrastructure for the university, as well as assisted departments with how to use and leverage the Web.

Appleyard's research interests center around the use and efficacy of online health information and the use and evaluation of technology to address disabled needs. He is currently focused on evaluating the usability and accessibility of e-Health Web sites for people with cognitive disabilities. He also has a keen interest in applying geographical information system technology to investigate and address disability issues and coordinates the OHSU GIS Users Group.

Brain Trauma Foundation funds DMICE as Center for Guidelines Management

This June the Brain Trauma Foundation contracted to establish a Center for Guidelines Management with the Department of Medical Informatics and Clinical Epidemiology at OHSU. Nancy Carney, Ph.D., assistant professor of medical informatics and outcomes research, is the center director, and Cynthia Davis-O'Reilly, M.S., is the project manager. The center will be responsible for updating existing guidelines, and developing new

guidelines as specified by the BTF advisory panel. Currently the center is updating existing guidelines for in-hospital care, with the addition of 11 new topics.

The Brain Trauma Foundation was founded in 1986 as a nonprofit organization to improve outcomes for traumatic brain injury patients. It has sponsored the development of treatment guidelines such as pre-hospital management, in-hospital care, and penetrating wounds.

Faculty Update

Promotions

Four OHSU faculty with secondary DMICE appointments received promotions this July.

- **Mark Helfand, M.D., M.P.H.**, is now professor of medicine and medical informatics and clinical epidemiology.
- **Dana Braner, M.D.**, is now professor of pediatrics and medical informatics and clinical epidemiology.
- **Jeanne-Marie Guise, M.D., M.P.H.**, is now associate professor of obstetrics and gynecology and medical informatics and clinical epidemiology.
- **Alan Melnick, M.D., M.P.H.**, is now associate professor of family medicine and medical informatics and clinical epidemiology.

Grants and Contracts Awarded

Paul Gorman, M.D., associate professor in DMICE, is principal investigator on a \$3 million, three-year project to improve medication safety for chronically ill elders in rural Oregon. Teaming up with L. J. Fagnan, M.D., director of the Oregon Rural Practice Based Research Network, and Karl Ordeltcheide, M.D., physician director of Information Systems at Samaritan North Lincoln Hospital in Lincoln City, Gorman will head a team of scientists from OHSU including the Oregon Graduate Institute, Portland State University and Oregon State University, working with rural clinicians and community organizations to develop a patient-centered medication information system that will provide accurate, complete and current medication information in order to reduce medication errors, omissions, duplications, interactions and adverse effects. The project is funded by the Agency for Healthcare Research and Quality.

Heidi Nelson, M.D., M.P.H., associate professor of medical informatics and clinical epidemiology and medicine, received an Evidence-based Practice Center contract from the Agency for Healthcare Research and Quality to prepare an evidence report on management of menopause-related symptoms. The report will be presented at the NIH State-of-the-Science Conference next March.

Karen Eden, Ph.D., assistant professor of medical informatics and clinical epidemiology, received an R03 award from the Agency for Healthcare Research and Quality to measure preferences on childbirth after caesarean.

As part of a funding initiative on demonstrating the value of health information technology, **Jeanne-Marie Guise, M.D., M.P.H.**, was awarded a \$1.5 million, three-year grant in improving safety and quality with integrated technology. Cynthia Morris, Ph.D., M.P.H., DMICE professor and vicechairman, is a co-investigator.

Bob Lowe, M.D., M.P.H., associate professor of emergency medicine and medical informatics and clinical epidemiology, received \$2.9 million for the Emergency Prehospital Investigative Consortium from the National Heart, Lung and Blood Institute. The project runs through August 2009.

As a subcontract from the Oregon Office for Health Policy and Research, OHSU has received funding from the Robert Wood Johnson Foundation Changes in Healthcare Financing and Organization Initiative. Lowe serves as principal investigator for this two-year project on the impacts of benefit reduction and increased cost sharing in a Medicaid program.

Other News

Tom Yackel, M.D., M.S., assistant professor of medical informatics and clinical epidemiology, was named a

Physician Champion on the \$19.2 million ambulatory electronic health record project of OHSU and OHSU Medical Group.

In July **Jeanne-Marie Guise, M.D., M.P.H.**, served on the AHRQ Special Emphasis Panel for the RFA Transforming Healthcare Quality Through Information Technology — Implementation Grants

In June the OHSU Center of Excellence in Women's Health, directed by **Michelle Berlin, M.D., M.P.H.**, co-sponsored the Northwest Health Foundation's conference on improving the health of our communities through collaborative research. This two-part conference explored issues related to community-based research partnerships, methodology, funding and dissemination and was co-sponsored by the OHSU School of Nursing Center on Health Disparities Research, African American Health Coalition, Susannah Maria Gurule Foundation, Portland State University Mark O. Hatfield School of Government, OHSU Cancer Institute, OHSU Oregon Rural Practice-Based Research Network and the Community-Campus Partnerships for Health.

The OHSU Center of Excellence in Women's Health has received funds from the federal Health and Human Services Office on Women's Health Region X to locate, modify and disseminate materials to Oregon women about the importance of diabetes control.

Publications (by title)

Hyperbaric oxygen therapy for traumatic brain injury: a systematic review of the evidence. McDonagh M, Helfand M, Carson S, Russman BS. *Archives of Physical Medicine and Rehabilitation*. 2004; 85(7):1198-1204.

Vaginal birth after caesarean: determining thresholds for risks requires examining more than uterine rupture rates. Guise J. *BMJ*. 329:7462,

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Interventions to promote breast-feeding: applying the evidence in clinical practice. Palda V, Guise JM, Wathen CN. *CMAJ*. 170(6):976-8, 2004.

The relationship of health care delivery system characteristics and legal factors to mode of delivery in women with prior caesarean section: a systematic review. Kraemer DF, Berlin M, Guise JM. *Womens' Health Issues*. 14(3):94-103, 2004.

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Getting the right tools for the job: preparatory system configuration and active replanning in cardiac surgery. Hazlehurst B, McMullen C, Gorman P. *IEEE Transactions on Systems, Man, and Cybernetics*. Part A, 2004.

Screening children for family violence: a review of the evidence for

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From the Chair

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having been promoted with equal vigor by Democrats such as Rep. Patrick Kennedy and Sen. Hillary Clinton. A strong Republican supporter promoting the same vision has been Former Speaker Newt Gingrich.

Our department is involved in a number of HIT initiatives. Faculty member Paul Gorman, M.D., has received federal funding to develop a communitywide medication list for the Lincoln City area. Likewise, faculty member Jeanne-Marie Guise, M.D., M.P.H., has received a grant to develop a system to track data and clinical outcomes across the spectrum of obstetric care. I am involved in the Oregon Health Information Infrastructure, a collaboration aiming to bring together all of the major stakeholders in the state to improve health care quality through a health information exchange.

The world of clinical epidemiology is not standing still either. The Evidence-Based Practice Center continues to attract projects and funding, with a particular focus on preventive services and the evaluation of drug classes and food-based health claims. As you'll read in this issue, this side of the department also is hard at work launching its new Master of Clinical Research degree program, making DMICE a leader on campus in new health-related graduate programs.

This fall brings the usual large cadre of new informatics students to campus and to our online programs. Our Ph.D. program is now entering its second year, while the master's degree programs continue to thrive. We also are launching a new combined degree program with the Department of Computer Science at Portland State University, where students can simultaneously obtain a bachelor's degree in computer science and a master's degree

in biomedical informatics in five years.

As we move into a new academic year, I am pleased to announce the first DMICE annual giving campaign. You may ask why we are launching a fund-raising drive at a time of unprecedented success of our grant funding and educational programs. The reasons are many.

Despite our success in obtaining grant revenue and tuition, these monies are earmarked for specific expenses of the research projects and educational programs. Grant funding, while a cornerstone of our departmental revenue, also is fiscally challenging. Most of our grants come from federal sources (e.g., NIH, NLM and AHRQ), which have very explicit regulations on allowable expenses. Furthermore, these grants are time-limited, so that the money must be spent in a specific period and returned if unspent. In addition, the lead time for applying for a grant, having it reviewed and receiving the award can be up to a year. Grant funding also is highly competitive, with most programs funding only 10 percent to 25 percent of applications received. Although we get funded at a rate higher than the average, we still write many high-quality proposals that do not get funded. The amount of time it takes to put together proposals, plus the long waiting time for their review, puts additional strain on our resources.

So although our grants and tuition revenues fund the key activities of the department, they are very restrictive in how the money can be spent and provide little money for investment in the future. For example, faculty occasionally wish to pursue new areas of research that usually requires learning new techniques or generating preliminary data. Or the department may wish to invest in new educational programs. An example of this is our recent work with leaders in the health

information management field (the individuals who run medical records departments in health care organizations), where we hope to develop joint course and degree offerings.

Another use for gift funds will be for our students. Having money for things such as student travel to scientific meetings and career development activities will improve their education and increase their competitiveness in the job market, which will in turn attract more students. We also hope to raise funds for student scholarships that will allow us to attract more high-achieving students, especially those who have been offered scholarships elsewhere and may not otherwise attend OHSU.

Gift monies will allow us to pursue other opportunities, such as recruiting new faculty and advancing the career development of those already here. They also will allow us to bring in distinguished leaders in the field, who often benefit the entire community by participating in our academia industry dinners. (The next dinner for the academic year will feature David Banks, M.D., a renowned expert in the use of electronic health records for patient safety on November 2, 2004. See our Web site for more details.)

I hope you will consider investing in DMICE. A form for giving has been included in this newsletter to facilitate your gift, or you can make your gift online at www.ohsu.edu/dmice/giving. Putting my money where my mouth is, I have been giving to the department each month for almost a year.

In closing, I want to express my gratitude for the support DMICE has received from faculty, staff, students, the OHSU leadership and the community. I hope we can continue our mutually beneficial relationship with all of you, providing leadership and value in our respective fields and being a program you can be proud to be a part of.

Yes! I support the OHSU Department of Medical Informatics and Clinical Epidemiology as a leader in healing, teaching and discovery.

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DMICE Faculty

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The role of ambulance diversion of time spent in the emergency department. McConnell KJ, Bernell SL, Daya M, Richards CF, Lowe RA. *Academic Emergency Medicine*. 2004; 11(5):460.

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Hyperbaric oxygen therapy and brain injury. McDonagh M. Hyperbaric Medicine Symposium. Columbia, South Carolina, May 2004.

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Primary care practices may lack the capacity to adequately treat asthma [poster]. Lowe RA, Nicklin D, Maroney S, Localio AR, Schwarz D, Williams S, Tuton L, Feldman HI. Society for Academic Emergency Medicine Western Regional Research Forum, Oakland, CA. April 3, 2004.

Impact of Oregon Health Plan cutbacks on ED use [poster]. Lowe RA, McConnell KJ, Lapidus J, Weathers C, Adams A, Bauman B, Moorhead J. Society for Academic Emergency Medicine Annual Meeting, Orlando, FL. May 16, 2004.

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Risk factors for pressure ulcers in elderly hospital patients [poster]. Baumgarten M, Margolis DJ, Localio AR, Kagan SH, Lowe RA, Kinoshian B, Holmes JH, Abbuhl SB, Kavesh W, Ruffin A. Wound Healing Society Annual Symposium, Atlanta, GA. May 24, 2004.

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