



Past, Present, and Future: A Discussion About DMICE Going Forward

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Goals for this hour

- Reflect on some of our accomplishments in the BICC, DMICE, and informatics at OHSU
- Have some discussion about the future of DMICE and informatics at OHSU

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Jay Cummings @LongFormMath · 6h ***

When you were a carefree tenured professor living your best life, and then are suddenly forced to chair your department



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Beginnings

- OHSU sought and received federal earmark to establish BICC in 1980s
 - Funded by National Library of Medicine (NLM) Integrated Advanced Information Management System (IAIMS) initiative
 - BICC was an OHSU Center that would establish computer network and services, support library expansion, and develop academic informatics program
 - In 1989, recruited initial Director, J Robert Beck, MD, who came from Dartmouth College with Kent Spackman, MD, PhD, and Kathryn Pyle, AMLS, MA
- In 1991, BICC Building opened, with academic informatics on 5th floor
 - Dr. Beck first occupant of BICC 517



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Initial faculty

- In 1990, Dr. Beck recruited Assistant Professors William Hersh, MD and Mark Helfand, MD, MS, both with academic appointments in Department of Medicine
- Also recruited first fellow, Paul Gorman, MD
- In 1992, OHSU awarded initial NLM T15 (postdocs only)
- Around that time, Joan Ash was working OHSU Library while completing PhD at Portland State University and Cynthia Morris, PhD moved to the BICC Building



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Some setbacks but more successes

- In 1990, Oregon voters approved Measure 5 property tax limitation, which led to OHSU budget cuts and reductions in commitments to BICC
 - Dr. Beck left OHSU in 1992
 - Leadership of academic informatics assumed by Dr. Spackman, who became second occupant of BICC 517
- But many other early successes
 - Dr. Hersh awarded NLM R29 FIRST Award in 1990
 - Dr. Gorman awarded NLM R29 FIRST Award in 1995
 - AHRQ Evidence-Based Practice Center (EPC) awarded in 1997 under leadership of Dr. Helfand
 - Dr. Ash funded to study “physician order entry” by philanthropist Paul Mongerson in 1997, leading to her first NLM R01 in 2000

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Toward DMICE

- SOM Dean Joseph Bloom, MD noted we were coalescing and needed to form a recognized unit
- In 1997, free-standing Division of Medical Informatics & Outcomes Research (DMIOR) established with Dr. Hersh as Head
 - At OHSU, free-standing divisions act as departments in everything but name
 - BICC became just a building and no longer a Center
 - Most faculty moved primary academic appointments from elsewhere (e.g., Dr. Hersh from Department of Medicine to DMIOR)
 - Dr. Hersh became third (and current) occupant of BICC 517
- In 2003, SOM Dean Joseph Robertson, MD, MBA established Department of Medical Informatics & Clinical Epidemiology (DMICE), with Dr. Hersh as first Chair

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A passion I never knew I had: education

- Started teaching introductory informatics course as PH 549 elective in OHSU Master of Public Health Program in 1993
- Began planning for first graduate program, Master of Science in Medical Informatics in 1994
- After state approval, matriculated 7 students in 1996
- Courses numbered with MINF prefix
 - Introductory course became MINF 510
- First graduates of program in 1998

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Syllabus for first offering of introductory course

Public Health 549 – Introduction to Medical Informatics

William Hersh, M.D., Course Director
Fall Quarter, 1993
3 credit hours
Time – Wednesday 9/22-12/1, 4:00-6:30 PM
Location – 531 BICC Building

Objectives:

This course is designed to introduce the fundamental principles of medical informatics. The course will be taught so that individuals with various backgrounds, including those with medical, nursing, library science, or computer science backgrounds, can become familiar with information management in medicine, computer applications in medicine, and the fundamentals of medical decision making, artificial intelligence, and information retrieval.

Textbook:

Medical Informatics: Computer Applications in Health Care, Edward H. Shortliffe, Leslie E. Perreault, editors. Addison-Wesley, 1990. (To be available in OHSU Bookstore.)

Instructors:

BH – William Hersh, M.D.
KS – Kent Spackman, M.D., Ph.D.
JE – Jim Elert
HJ – Holly Jimison, Ph.D.
MH – Mark Helfand, M.D., M.P.H.

Tentative topic outline (Corresponding textbook chapters and lecturers):

9/22 – Introduction to Computers and Their Medical Applications (1, 4), (BH)
9/29 – Medical Data, Information, and Knowledge (2), (BH, HJ)
10/6 – Medical Decision Making (3), (HJ)
10/13 – Information Retrieval (14), (BH)
10/20 – Clinical Information Systems I - Overview, Hospital (6, 7), (KS)
10/27 – Clinical Information Systems II - Lab, Nursing, Ambulatory, Systems Perspective (8, 9, 13), (KS, JE)
11/3 – Clinical Research Systems and Outcomes Research (16), (MH)
11/10 – Expert Systems and Decision Support Tools (15), (BH)
11/17 – User-System Interaction: User Interface, Needs Assessment (HJ)
11/24 – Health Care Policy and Technology Assessment (19), (KS, HJ)
12/1 – Student Paper Presentations, Wrap-Up

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Subsequent educational program milestones

- 1999 – first online course – MINF 510 converted to online format
- 2000 – Graduate Certificate approved and launched
- 2002 – T15 renewed with predoc slots in anticipation of PhD program
- 2002 – MS approved for online delivery, non-thesis Master of Medical Informatics (MMI) established
- 2003 – PhD program approved and launched, with program name changed to Biomedical Informatics
 - Course prefixes became BMI, e.g., BMI 510
- 2006 – establishment of Bioinformatics & Computational Biology (BCB) track, headed by Shannon McWeeney, PhD
- 2007 – first PhD graduate, Adam Wright
- 2007 – Dr. Hersh assumed PI role for T15 from Dr. Spackman
- 2009 – OHSU hosts NLM T15 meeting



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More educational accomplishments

- 2005 – establishment of 10x10 (“ten by ten”) program
 - Standalone version of BMI 510 offered in partnership with AMIA
 - MOU stipulates mutual non-exclusivity
 - Congressman David Wu introduces and passes HR 461 – “10,000 Trained by 2010” Act, although never taken up by Senate
- 2010 – DMICE awarded \$5.8M for health IT workforce development in HITECH Act
 - <https://informaticsprofessor.blogspot.com/2010/04/ohsu-awarded-58-million-to-expand.html>
 - One of five Curriculum Development Centers (CDCs)
 - Designation as National Training and Dissemination Center to support CDCs
 - One of nine University-Based Training (UBT) Programs, which funded Graduate Certificate and MBI programs
- 2015 – launched ACGME-accredited Clinical Informatics Fellowship
 - First of four programs (now ~55) – half-dozen of which use our online courses
 - Vishnu Mohan, MD, MBI Program Director
- 2018 – “tracks” became Majors, with renaming of original to Health & Clinical Informatics (HCIN) and BCB to Bioinformatics & Computational Biomedicine

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Other curriculum development funding

- NIH/Fogarty and NLM, *Translational Informatics for Global Health: An Argentina-Oregon Collaboration*, 2009-2015
 - <https://www.hospitalitaliano.org.ar/#!/home/infomed>
- ONC, *OHSU Update and Expansion of the ONC Health IT Curriculum*, 2015-2017
 - <https://www.healthit.gov/topic/health-it-resources/health-it-curriculum-resources-educators>
- Big Data to Knowledge (BD2K)
 - NIH/NIGMS, *Adding Big Data Open Educational Resources to the ONC Health IT Curriculum*, 2014-2018
 - NIH/NIGMS, *OHSU Informatics Analytics BD2K Skill Course*, 2014-2018 (PI Dorr)
 - <https://dmice.ohsu.edu/bd2k/>
- AMA, *Preparing Future Physicians: A Bold Proposal for Oregon and Beyond*, 2013-2018 (PI Mejicano)
 - Opened door to clinical informatics curriculum in MD curriculum (led by Dr. Gorman)

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Where we are today



International students from: Argentina, Singapore, Egypt, Israel, Saudi Arabia, Zimbabwe, Thailand, China, South Africa, and others

Degree	Total	BCB	HCIN
Grad Cert	483	0	483
MS	422	71	351
PhD	38	15	23
Total	943	86	857

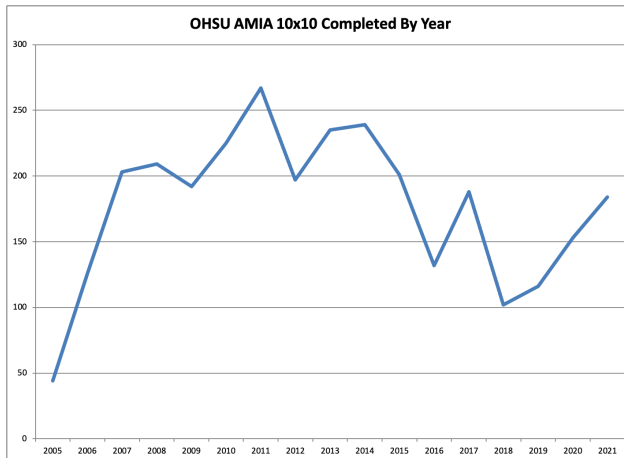


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10x10 – passed milestone of 3000 by 2022



Organization	Course Offerings	People Completing
AMIA	48	1953
American College of Emergency Physicians	14	221
American College of Physicians	1	25
Academy of Nutrition and Dietetics	7	126
Centers for Disease Control	1	18
California Health Care Foundation	1	16
Gateway Consulting (Singapore)	26	377
Ministry of Health (Israel)	1	11
King Saud University (Saudi Arabia)	4	83
Mayo Clinic	2	87
New York State Academy of Family Practice	3	22
Abu Dhabi Health Services (United Arab Emirates)	1	54
Scottsdale Institute	1	15
Society for Technology in Anesthesiology	1	5
Total	111	3013

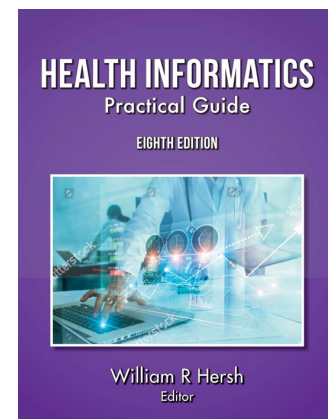


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Other numbers and accomplishments for introductory course – mid-2022

- BMI 510 and predecessors – 1598 since 1996
- Other customized offerings – Mayo Clinic, Kaiser Permanente, Bangkok Hospital, H3ABionet
- Course for medical students early in pandemic – 222 students from 17 medical schools in early-mid 2020
 - Still available to OHSU medical students as MINF 705B/709A elective



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DMICE faculty who are graduates of program

- Pre-NLM Fellowship
 - Joan Ash (Emeritus)
 - Paul Gorman
- NLM Post-doc
 - Elis Boudreau
 - Aaron Cohen
 - Tracy Edinger (Affiliate)
 - Michelle Hribar
 - James Jacobs
 - Lisa Karstens
 - Michael Lieberman
- MS
 - Bikram Day (Affiliate)
 - Judith Logan (Emeritus)
 - Vishnu Mohan
- NLM Pre-doc (PhD)
 - Steven Bedrick
 - Chris Hoekstra
 - James McCormack
 - Michael Mooney
 - Dana Womack
 - Jianji Yang
- Clinical Informatics Fellowship
 - Ben Orwoll
 - Da Jin
- (OHSU Internal Medicine Residency
 - David Dorr)

(Not sure this list is complete!)




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My research has gone pretty well too

Google Scholar



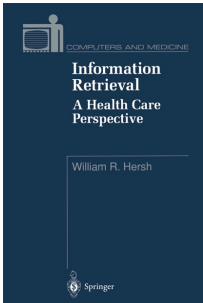
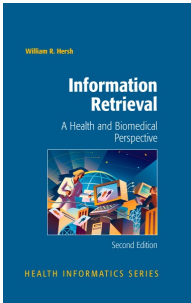
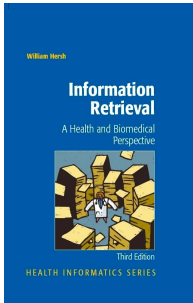
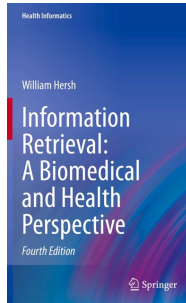
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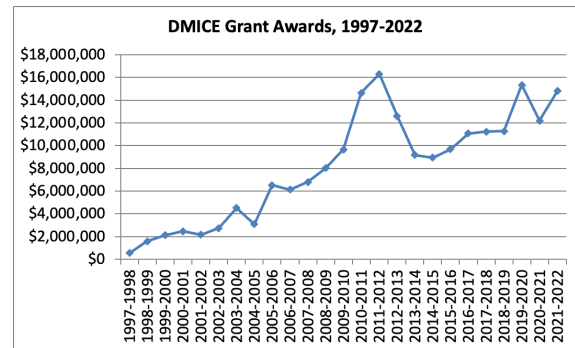


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Current status of DMICE

- Recognized national and international leader in biomedical informatics and clinical epidemiology
 - T15 largest and second-longest training grant at OHSU (131 trainees, \$22M)
- Department Vice Chairs
 - David Dorr, MD, MS
 - Karen Eden, PhD
 - Shannon McWeeney, PhD
 - Cynthia Morris, PhD, MPH
- Tremendous administrative staff, led by
 - Anne Marshall
 - Andrea Ilg



Over \$200M since 1997



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What will I do when I am no longer Chair?

- BMI 510, 10x10, and MINF 705B/709A
- NLM R01 – *Semi-structured Information Retrieval in Clinical Text for Cohort Identification*, 2021-2026
- NIH Data Science Initiative for Africa, *Computational Omics and Biomedical Informatics Program (COBIP)*, 2021-2026
- NLM T15 – *Research Training in Biomedical Informatics and Data Science at Oregon Health & Science University*, 2022-2027
- NLM R25, *Attracting Talented and Diverse Students to Biomedical Informatics and Data Science Careers Through Short-Term Study at OHSU*, 2022-2027
- DMICE collaborations
 - Eden, Mammogramscreen, AHRQ, 2020-2025
 - Cohen, PTC Therapeutics, 2021-2023
 - Gold/Mohan, EHR simulation, AHRQ, 2019-2024
 - Dorr, *Voice as a Biomarker of Health*, NIH Bridge2AI, 2022-2027



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Thank you!

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