



MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

Health Information Technology & Services

YEAR IN REVIEW

2016 – 2017



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HITS

YEAR IN REVIEW

2016 - 2017

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Andrew Rosenberg, M.D.

MESSAGE FROM THE CIO

This fall marks one year since Health Information Technology & Services (HITS) was formed. In unifying two strong information technology groups, we created a streamlined and efficient organization that leverages existing strengths and builds upon our past successes. HITS fosters richer, more collaborative partnerships with Michigan Medicine and the greater U-M community. As HITS evolves and grows, we continue to closely align our high-quality IT services to support the institution's three-part mission.

HITS is composed of talented people working in creative new ways to provide exceptional support for research, biomedical education, and clinical care (see *Staff Spotlights*, page 14). HITS serves patients and their families, faculty, staff, and students through the strategic development and delivery of innovative tools, technologies, and services.

"The University of Michigan invented tools and technology that shaped our daily experiences in healthcare, and also changed the world."

In honor of the University of Michigan's bicentennial, we examined how health technology was pioneered and modeled by our own researchers, clinicians, staff, and students (see *Generations of Health Information Technology*, page 36). The University of Michigan invented tools and technology that shaped our daily experiences in healthcare, and also changed the world. To foster an appreciation and deeper understanding of the developments and influence of health IT over the years, a portion of this annual report is dedicated to its evolution and growth.

While celebrating our history, we also look to the future and consider how HITS will continue to help shape the forthcoming contributions of our faculty, students, and staff (see *Looking Forward*, page 42). Through collaboration, unification, and implementation we are now poised to achieve even greater accomplishments ahead.

Sincerely,

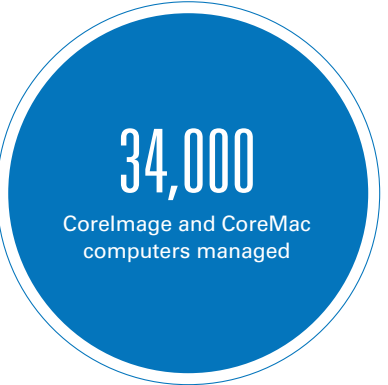
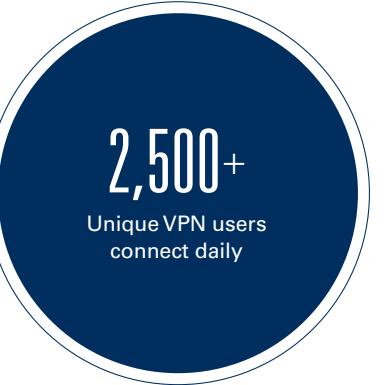
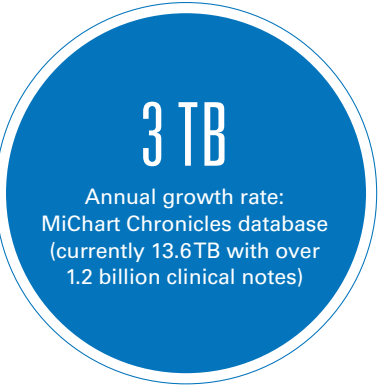
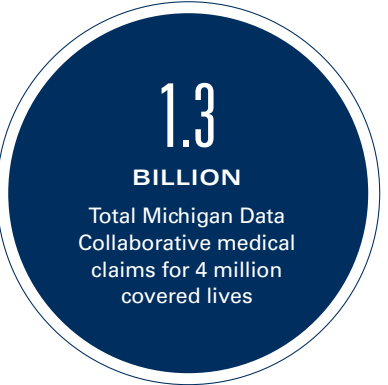
Andrew Rosenberg, M.D.
Chief Information Officer
Michigan Medicine

The Year in Numbers

Our **900 talented staff members** support one of the largest healthcare systems in the world: Michigan Medicine. HITS currently serves more than **130 locations** across the state of Michigan.

Working together, we provide a variety of services. For example, over the past year we managed **24 petabytes** of storage and maintained **140,000 devices** and **8,000 printers**. We protected, facilitated, and secured **8.5 million messages** sent and received internally each week and prevented **2.25 million cybersecurity intrusions**.

Every day, HITS staff members make the Michigan Difference by championing the pursuit of excellence in the clinical, research, and education aspects of our mission.



Office of the CIO



The Office of the CIO establishes and executes information systems, tools, and processes that accelerate the capacity and capabilities of HITS to successfully achieve the organization’s vision and support of Michigan Medicine’s mission. These efforts include coordinating and managing strategic planning and alliances, business development, portfolio management, communications, and staff engagement.

The OCIO played an integral role in the creation and development of HITS. From the beginning, the vision was to build a robust and flexible organization for delivering IT services and products to support existing—and evolving—institutional strategies. Recognizing that HITS needed to position itself to embrace the challenges and opportunities of the future, the OCIO engaged with U-M leaders, faculty members, staff, and IT professionals to envision, develop, and launch the new organization.

Looking forward, the OCIO will continue to evolve and mature by implementing more detailed strategic planning methods and aligning with institutional strategy.



Leadership

Ted Hanss, MBA, MA, CHCIO
Associate CIO

Ted supports HITS and the Office of the CIO (OCIO) through his work on strategic initiatives and promoting partnerships across Michigan Medicine and the university campus. He is involved in both national and international standards efforts and consortium activities. Ted is also a frequent speaker on leading-edge technology topics.

Unification

MCIT AND MSIS UNIFY TO BECOME “HEALTH INFORMATION TECHNOLOGY & SERVICES”

Health Information Technology & Services launched in September 2016 as a new organization designed to leverage the best aspects of two accomplished information technology and services groups: Medical Center Information Technology (MCIT) and Medical School Information Services (MSIS).

HITS is a comprehensive, flexible information technology and services organization capable of supporting current and emerging needs across Michigan Medicine while remaining committed to effective and efficient support for patients and their families, clinicians, researchers, educators, students, and staff.



Although these activities are organized under a new name, the positive aspects of the MSIS and MCIT approaches to customer-focused service delivery remain. This includes offering a “one-stop” resource for accessing help and information related to information technology, services, and support. HITS provides innovative, high-quality support for patient care, research, biomedical education, and other key health-system priorities and delivers the same high-quality, reliable, and secure services that MCIT and MSIS historically offered, with flexibility to quickly adapt to future IT demands.

Mission, Vision, Values

Health Information Technology & Services leadership began by developing our Mission, Vision, and Values. Our Mission is a reflection of who we are, what our purpose is, and our starting point. Our Values are core behaviors we are guided by and strive to uphold. Our Vision is who we aspire to be and provides our future direction. All were formally adopted in September 2016.



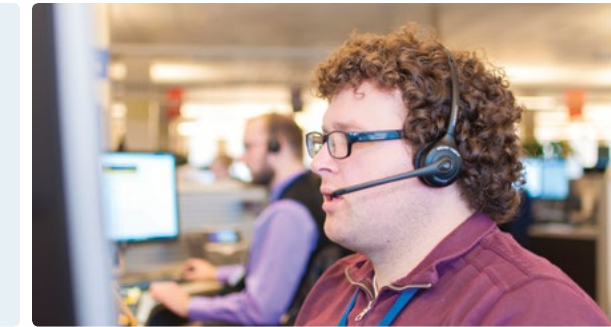
OUR MISSION

We discover, implement, and support secure, mission-critical health information technology and services that are: helpful and protect our patients and their families, relied on by care providers, key to the success of researchers, valued by educators and learners, and a source of pride for all Michigan Medicine staff.



EXCELLENCE

in technology and services and their application to the academic medical center



DIVERSITY

toward achieving a safe, inclusive environment and a stronger team

DEDICATION

to the academic medical center services inspired by our mission

OUR VALUES

We are guided by the shared values we live by as an organization and individually.

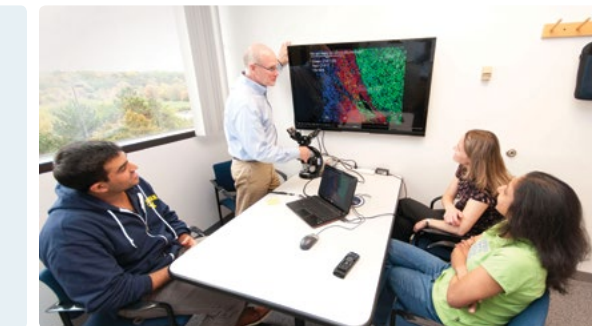


RESPECT

for our colleagues, faculty, learners, staff, research subjects, patients, and patient families

CREATIVITY

in problem solving and providing solutions



OUR VISION: 2022



WORK WITH PURPOSE

Working together as a single organization, we successfully navigate the challenges of interdependency. How we work reflects our values and is centered on making life better for those in Michigan and beyond. Our daily work is strategy driven and focuses on the priorities of Michigan Medicine. We empower and support each other and make each other better by sharing ideas and best practices.



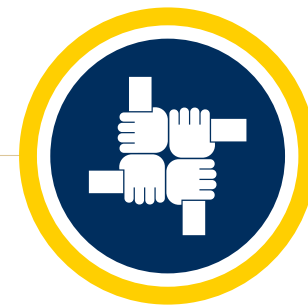
SERVICE SEAMLESS AND EFFICIENT

The Michigan Medicine customer experience is seamless and transcends organizational complexities. We always deliver service with empathy and, wherever possible, we empower users by providing self-help resources.



ALLIANCES ACROSS MICHIGAN

We are expanding Michigan Medicine's efforts to affiliate more closely with partners across the state of Michigan. We accomplish this through enhanced technologies, data sharing, and discovering and responding to the specific and integrated needs of our providers, provider organizations, and other groups that define our networks of care.



RELATIONSHIPS DEEP AND PURPOSEFUL

We are purposeful, careful, and explicit about the strong, sustainable relationships we build with colleagues and customers. As a result, we are better able to anticipate needs and deliver ideal solutions.



PERSONAL GROWTH AND OPPORTUNITY ENABLE AND TAKE CHARGE

As a single organization supporting the three key areas of the Michigan Medicine mission, we provide a wealth of opportunities for people at every level of our organization. As part of our efforts to drive personal improvement and effectiveness, we must seek to increase our technical excellence and mission-focused knowledge.



INSTITUTIONAL COLLABORATION THE WHOLE IS GREATER THAN THE SUM OF ITS PARTS

We embrace the alliance of IT across Michigan Medicine and the University of Michigan. We work collaboratively to strengthen our core services and efficiently support the specialized needs of university departments and Michigan Medicine.



SOLUTIONS NOVEL, SECURE, RELIABLE, AND INTUITIVE

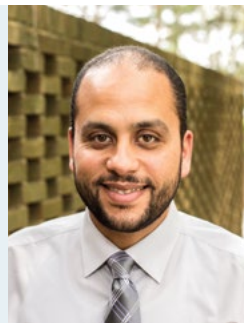
We lead Michigan Medicine in applying information and technology in novel ways to deliver intuitive solutions that empower our customers and enable them to make new discoveries for improving the lives of others. Access to a broad range of technology and expertise across a single organization results in the delivery of more robust solutions.

Staff Spotlights

Every day, staff with diverse backgrounds and experiences come together to contribute to Michigan Medicine’s mission supporting research, patient care, and education. Whether welcoming visitors at the front desk, fixing computers, analyzing statistics, writing content, designing training curriculum, protecting the medical campus against cyber attacks, or developing mobile applications, HITS staff work hard to meet our customers’ needs—and have fun in the process. Overwhelmingly, the people make HITS an exciting and interesting place to work.

Mohammad Ateya, Pharm.D., M.S.

Clinical Informatics Pharmacist
and Adjunct Clinical Instructor,
College of Pharmacy
Clinical & Operational Applications
Medication Use Informatics Team
Arbor Lakes



I am proud of the way our work at HITS impacts the Michigan Medicine community. I co-developed a pediatric insulin calculator for use in C.S. Mott Children’s Hospital. The calculator streamlines insulin ordering, decreases waiting periods, and increases satisfaction of clinicians and patients. One of my favorite quotes from a nurse is, ‘The insulin calculator saves so much time! It’s no fun waiting for an order while the child stares at their lunch, which is getting colder by the minute.’ This calculator has been adopted by 11 other hospitals across the U.S. so far.

Wendy W. Blackman, B.A.

HITS Administrative
Assistant/Receptionist
Finance & Administration
Domino’s Farms



My favorite things about my job are serving as the HITS coordinator for the Making a Difference Awards and working with people. I’m a people person. I want everyone—staff and visitors alike—to know they matter. I say, ‘Good morning,’ and ‘Have a good evening,’ because I don’t know if people have a tough day ahead of them or if they have already had a bad day. They can at least count on getting these simple courtesies from me. My passion is helping staff recognize and know they are a valued part of the HITS team.

John Ballbach

Software Developer Senior
Architecture & Operations
Management
MiChart Server Support Team
Arbor Lakes



I’m contributing to something bigger than just a ‘job’ here. I worked in the automotive industry right out of college, and while the work was interesting and worthwhile to that company, I did not feel I contributed to a ‘higher good’ like I do here with the indirect help I provide people. Making sure the numbers add up on the balance sheet for the automotive companies just doesn’t compare to knowing I can make a difference to the patient’s experience and to the work done by the doctors, nurses, and other direct patient-support personnel.

John Carr, CRT

Clinical Business Analyst Senior
Clinical & Operational Applications
MiChart Clinical Documentation Team
Domino’s Farms



I have worked in IT for four years after serving as a nurse in C.S. Mott Children’s Hospital for 24 years. I always liked the IT aspects of my job, and when the opportunity was presented to work with MiChart, I jumped on it. I enjoy being able to integrate my clinical experiences and my computer hobby into a worthwhile career, including developing a new inpatient tool for rapid patient-safety checks. I believe my work improves the way patient information is documented, and it enables bedside staff to be more efficient and comfortable with MiChart.

Mary Jo David

Business Systems Analyst Senior
Education & Training
Documentation & Publishing Team
Arbor Lakes



I write and edit user documentation, departmental styles and standards, developer specs, web copy, and more. What I love about my role is wearing so many hats and working with a variety of people. As an early user of a new or updated program, dashboard, or tool, I sometimes find myself performing quality assurance functions, usability assessments, and even some project management and training—all throughout the writing process. I’m always heartened by how open-minded and appreciative others are to receive suggested improvements. And, there’s an added plus—I get to do all of this to promote good health!

Ryan Henyard

Business Systems Analyst Lead
Education & Training
Education Informatics & Technology Team
Taubman Health Sciences Library



I work primarily with medical education—analyzing, designing, and implementing solutions that improve medical student learning. This aligns perfectly with my passions: improving higher education, providing more people with access to education, and empowering people to create new teaching and learning methods that fit their needs. I’m ardent about helping our partners translate their ideas into reality with technology. The best part of my job is finding ways to remove barriers for those we serve—like improving a difficult process or finding a technical solution that saves significant effort—while improving the educational experience for all students.

Jamie Estill, Ph.D.

Business Systems Analyst Lead
Research Applications & Advanced Computing
Research Integration
North Campus Research Complex



We are living in a unique time in history where many of the problems in human health can be solved, not by collecting new data, but by leveraging existing data in new ways. My work gives me the opportunity to create the informatics infrastructure necessary for this data-intensive science. HITS has the opportunity to accelerate the transition of research discoveries to clinical practice, and I am excited to see how quickly we can help researchers deploy new discoveries. The innovations built upon this infrastructure will impact patient lives both today and into the future.

Victor Mensah

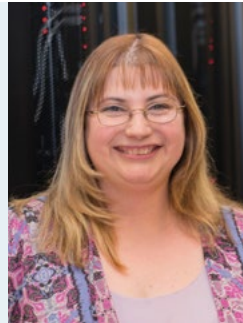
Business Systems Analyst Senior
Data, Reporting & Analytics
Health System Data Warehouse Team
Arbor Lakes



Information Technology enables almost everything we do today, in almost all disciplines; that is what excites me about IT. I recently returned from a Science, Technology, Engineering, Math, and Medicine conference in Cameroon. This is the first time that HITS was represented at the conference. There were many discussions about health information technologies and data capture, storage, management, and dissemination. Almost everyone I spoke to needs help setting up and managing a health information system. Because of our experience and capacity, HITS can advise on best practices and knowledge regarding health information systems implementation—this is what HITS does best.

Jennie Miller

End User Computing Specialist Intermediate
Architecture & Operations Management
Service Desk, Clinical Applications Support Team
North Campus Auxiliary Support Building



I love that my job is multifaceted. My varied formal education and life experiences have provided me with diverse skills I can put to good use. In my position, I get to understand the needs of various departments, support teams, providers, and staff, then facilitate collaboration between these groups and the rest of our complex organization. It may sound odd, but I love facilitating the Major Incident process. My naval training prepared me for managing crises, staying calm, and following procedures efficiently. I like helping guide our technical teams, directors, and leadership through the process.

Cristina Moisa, M.A., M.S.I.

IT Project Manager
Research Applications & Advanced Computing
Clinical Trials Management System (OnCore) Team
North Campus Research Complex



I'm captivated by the interaction between information, technology, and people. I love the creative problem-solving that project planning encompasses: uncovering constraints and stacking the bricks to architect the highest, most earthquake-proof tower according to the client brief. Good project management can decrease the pain of implementing a new system and support the end users through the transition. Our end users are the clinical research teams; their work ultimately benefits patients and all of us as a society. I am proud to be a small part of the tremendously important and valuable work of clinical research.

Gracie Trinidad, M.P.H., M.S.

Business Systems Analyst Intermediate
Office of the Chief Information Security Officer
Information Assurance Team: Michigan Medicine
Arbor Lakes



The most surprising part of my role in cybersecurity is that it's not all code on black-and-green computer screens. This job is very people-oriented—it's a great deal about educating end users on good cybersecurity behaviors that protect them and the organization. And, while I love working with end users, my favorite thing about my job is my co-workers. One-hundred percent. It's these people who make me want to go to work every day. The virtue of teams is strongly emphasized at HITS—it is a team-supported, team-oriented workplace.

Kalpesh Unadkat, M.S., M.B.A., CISSP

IT Monitoring Lead
Enterprise Infrastructure
Monitoring & Performance Team
Arbor Lakes



Setting up the hospital wireless guest network is my favorite of the projects I've worked on because it directly impacts patients and families. We want people to feel comfortable while they're here. One of my most worthwhile moments was helping a young patient connect to an online game via the guest network. She was so happy to be able to play; it made her day. That's the reward that you get working here. I feel proud that people use the network. I'm pleased to say we were the first large hospital in Michigan to provide a wireless guest network.

Ransom Roquemore, CISSP

Network Architect Senior,
Enterprise Infrastructure
Technical Infrastructure
Network Architecture Team
Domino's Farms



I focus on security—maintaining firewalls, intrusion prevention systems, and virtual private networks. My goal is to provide the cybersecurity operations team with the network-based tools it needs to prevent and detect security threats. My favorite part of working in IT is the problem-solving. Each day brings a new challenge with a complex set of variables to account for, and one of the most important at Michigan Medicine is scale. In an environment consisting of 25,000+ employees and 100,000+ connected devices, developing and deploying scalable solutions presents some interesting challenges. Resolving them is very rewarding.

Melissa Thurber, M.B.A.

Project Manager Senior
Service Management
Software Delivery Team
North Campus Research Complex



I work with an outstanding team of designers and developers to build custom software that meets critical needs and allows for major advancements across Michigan Medicine. As the liaison between stakeholders and the team, I help articulate the vision and then collaborate with my team to design and build solutions. I've had the privilege of working on several high-impact projects, including a mobile application used to understand the high rate of depression in medical interns and, for the Medical School, several applications that facilitate admissions, grant management, and applicant-to-alumni tracking and program analysis.

Jennifer Wallis, M.S.

Business System Analyst Intermediate
Office of the Chief Information Security Officer
Information Assurance Team: Michigan Medicine
Arbor Lakes



I have long been interested in cybersecurity. I enjoy that there is always something to learn with old and new technologies alike, and how cybersecurity affects personal protections and privacy. I began working with computers very early in my career, and I became curious about viruses and malware so I could protect myself. I realized that it was becoming an increasingly common conversation with not only IT colleagues but with other coworkers, too. I knew then that I had to learn even more. I'm thrilled that HITS is investing in cybersecurity protections for staff, patients, and their families.

John Yurko, PMP

IT Project Manager Senior
Service Management
Performance & Improvement
Management Team
Domino's Farms



Over the past 18 months, I have enjoyed and been fortunate to work on many large projects—assisting others with important infrastructure and security measures that improve the overall services HITS provides. I like working with so many talented people and seeing positive results, especially as our environment becomes more secure. Surprising to some, my 'office' is a backpack, which allows me to easily go where my customers are. I've found that it is best to meet face to face; it's much easier to connect with people, and it allows me to understand the human side of the work.



The **Clinical & Operational Applications (COA)** division is responsible for more than 300 clinical and business applications relied upon by patients, clinicians, and staff every day. COA team responsibilities span inpatient, ambulatory care, clinical areas, and revenue cycle. A significant focus of the COA team is MiChart, Michigan Medicine’s electronic health record (EHR) system. COA staff are responsible for implementing and configuring MiChart workflows, enhancements, optimizations, and new modules.

Services

- » Provide workflow and business analysis to determine the best technology solution for clinical and business operational customers.
- » Implement, configure, support, and maintain clinical and operational applications and systems.
- » Continuously optimize systems through implementation of vendor enhancement and maintenance upgrades.
- » Perform analysis, functional support, build, maintenance and upgrades of enterprise and local clinical and operational software applications.
- » Provide 7x24x365 on-call support for critical applications.
- » Ensure secure and appropriate access of data.
- » Support users and user processes related to MiChart, the electronic health record (EHR), and other applications.
- » Support the contracting / procurement / RFP process with new applications and contract renewals.
- » Assist in promoting awareness of and staying compliant with regulatory bodies— The Joint Commission (TJC), Centers for Medicare & Medicaid Services (CMS), Meaningful Use, etc.
- » Follow Institute for Safe Medication Practices (ISMP), FDA announcements, and state/federal legislative changes.

Leadership

Karen Hollingsworth, RN, MS, CPHIMS
Senior Director

Karen is an experienced clinical and IT leader with 40 years in various healthcare roles, including Staff Nurse, Educator, Cardiovascular CNS, Critical Care Nursing Director, Clinical Information System Director, Chief Information Officer, Consultant, and Executive Director.

Accomplishments



Launched six new MiChart applications, including Radiology (Radiant), Diagnostic Vascular and Interventional Radiology (Cupid), MiChart Home Health, Bed Management, Environmental Services, and Patient Transport. Also deployed the “Break the Glass” security feature, video visits, eConsults, and eVisits.



Improved patient safety by implementing FDA-approved blood transfusion function and breast-milk barcode scanning / formula allergy checking.



Improved medication management by installing 25 new Omnicell cabinets in sedation areas throughout Michigan Medicine and remote sites.



Deployed radio-frequency identification (RFID) to 7,000 pieces of patient equipment.



Improved patient flow and cumulative occupancy by creating metrics and tracking results to reduce time between discharge order and actual discharge.



Activated remote video monitoring of patients as a replacement for a 1:1 sitter, saving more than \$1M and effectively reducing the time nurses spent as sitters.



The **Research Applications & Advanced Computing (RAAC)** team serves the Michigan Medicine research community by engaging with faculty in the basic sciences through clinical translational research. RAAC is composed of the Research Engagement team, the Research Integration team, and the Research Program team.

- The Research Engagement team works closely with lab researchers to provide solutions and to direct them to the broad range of IT resources available at U-M.
- The Research Integration team partners with informaticians and data science experts to liberate Michigan Medicine's abundant data resources to enable decision-making.
- The Research Program team harnesses the power of and support for our enterprise research platforms—MiChart, OnCore, and LabVantage.

Services

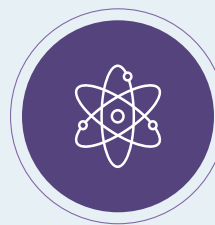
- » High-performance computing
- » Virtual servers
- » Secure enclaves
- » Cloud computing resources
- » Biospecimen management (Labvantage and Freezerworks)
- » MiChart research services
- » Data storage for researchers
- » Research device inventory
- » Clinical Trials Management System (OnCore)
- » Specialized data integration

Leadership

John Brussolo
Interim Senior Director

With more than 25 years of IT management experience within both U-M and the pharmaceutical industry, John leads teams that understand Michigan Medicine's rigorous research environment and how to apply IT solutions that advance scientific discovery and clinical care.

Accomplishments



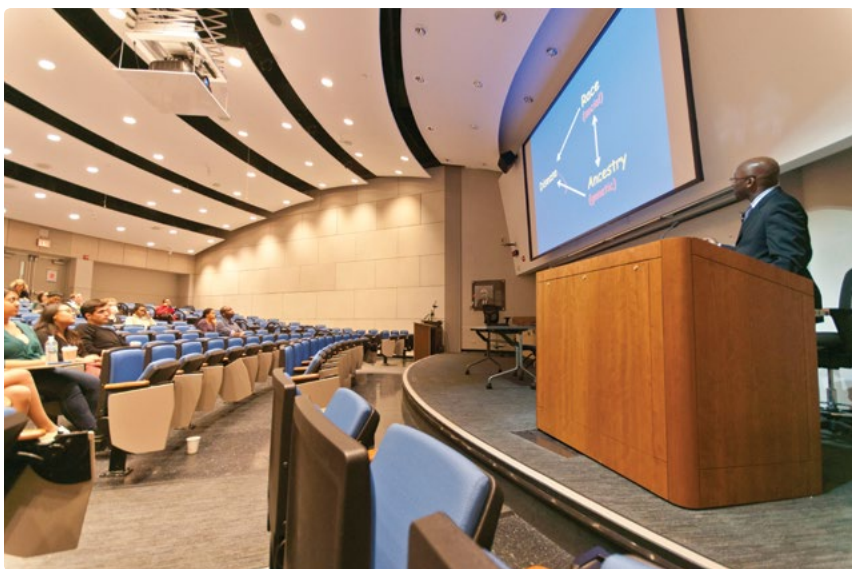
Enabled successful completion of all data characterization tests for U-M's contribution to the Learning Health Systems network (LHSNet.org), which is funded by the national Patient-Centered Outcomes Research Institute (PCORI).



Created the research investigator computing package to eliminate the cost for consuming entry-level quantities of some key IT services. This will be launched in Q2 FY2018.

Launched a new Clinical Trials Management System to handle basic and complex clinical trial research workflows across Michigan Medicine. Phase 1 is underway with all non-oncology, clinical-trial support units entering new studies into the system.





Education & Training is responsible for information technology and services related to the delivery of both degree and non-degree learning for the Medical School students and over 30,000 faculty and staff across Michigan Medicine. This includes foundation systems—such as MLearning—used across the enterprise and many tools supporting the undergraduate medical education curriculum transformation, degree-granting programs, and continuing education. Education & Training also enables the delivery of content through teams dedicated to instructional design, in-person training delivery, eLearning design, documentation, publishing, and more.

Services

- » MLearning learning management system
- » Classroom management
- » Medical education support
- » Education informatics and technologies
- » eLearning design
- » Education and training technology needs assessment and implementation
- » Documentation and publishing
- » Workforce instructional design
- » Instructor-led, in-person, and virtual synchronous training

Leadership

David Sweetman, Ph.D., M.B.A.
Senior Director

David is a leader in developing collaboration and expertise among U-M's 3,200+ IT professionals. He has led efforts to double faculty satisfaction, unite previously disparate organizations, and introduce new IT services. David teaches leadership and organizational theory and has authored three dozen academic articles on leadership, education, and training.

Accomplishments



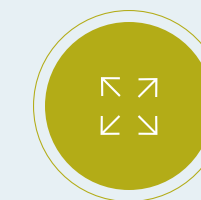
Provided classroom training to support the implementation of new MiChart functionality, including new modules for Radiology, the Diagnostic Vascular Unit, Interventional Radiology, and Home Health. Also developed e-learning to support go-lives for the MiChart Upgrade, Capacity Management, and more.



Relaunched the Open Michigan website to include open educational resources, data, and publications from across U-M. The site encourages scholars and students to maximize the impact of their work through open sharing.



Created video podcasts, online quizzes, active learning sessions, content apps, and video demonstrations in support of the new undergraduate medical education curriculum.



Expanded the role of training support to additional topics, including Aspect phone system, Network Admission Control, Office 2016, Windows 10, and HITS Project Process.



To provide outstanding products, services, and support, the **Service Management** team focuses on customers—faculty, staff, students, and beyond—to ensure HITS consistently meets their needs. The team designs and manages foundational products and services, including collaboration tools, audiovisual and conference rooms, and device services. Service Management also provides consulting, information design, user experience analysis, and custom development of software applications and websites while managing and improving the tools and systems of work used by HITS staff. The team's expertise in communication, user advocacy, and engagement helps to ensure HITS continually meets the need of its customers.



Leadership

Michael Warden
Senior Director

Michael has served in several areas across Michigan Medicine, from research applications, to strategy, to performance improvement. Passionate about a positive, energetic culture, his professional interests include building strong teams and providing great service to faculty, staff, and students.

Services

- » Audiovisual (A/V) and conference room design and implementation
- » Digital sign services
- » Web development and design
- » Custom product development
- » Faculty life-cycle management
- » Communications and change management
- » Workflow and collaboration system support
- » Videoconferencing solutions
- » Mobile-device services
- » Service quality and project management
- » Quality assurance and testing

Accomplishments



Acquired ServiceNow as the strategic platform for service delivery across HITS. The tool will support HITS in becoming a service-oriented organization.



Partnered with the Medical School Office of the Dean to improve the Medical School website by mapping the journey of a prospective medical student.



Implemented BoardEffect, an application for managing and storing committee materials. This is the first in a line of projects focused on improving our portfolio of collaboration tools.



Upgraded A/V room installations and digital signs across Michigan Medicine.



Supported the Medical School's new curriculum by delivering custom products, including new ways to visualize student performance.



The **Data, Reporting & Analytics (DR&A)** division collaborates with teams throughout Michigan Medicine, U-M, and the state of Michigan, to ensure data assets are well structured, accessible, and easy to consume. Their work enables leaders, researchers, clinicians, educators, and administrators to make strategic, data-driven decisions. DR&A encompasses four teams across the clinical, education, research, and administration domains:

- Data Integration & Delivery coordinates all aspects of enterprise data management and data resource creation and maintenance.
- Reporting & Analytics provides business intelligence solutions to enable clinical, operational, and financial analysis.
- Health Information Exchange organizes efforts to exchange electronic patient health records with other health systems, in support of patient care, safety, and operations.
- Michigan Data Collaborative delivers statewide claims and clinical data aggregation and analytic services for improving care delivery and population health.

Services

- » Enterprise architecture, development, and management of data resources
- » Data aggregation and integration
- » Data warehouse and data mart builds and resource management
- » Measure creation and report-delivery solutions
- » Administration and management of reporting and analytic tools and applications
- » Data reporting and visualization
- » Data Concierge and analytic consultation services

Leadership

Myron Hepner
Senior Director

With 20+ years of experience in healthcare information services, Myron's expertise spans data architecture, database building, reporting, analytics, and performance support. He also founded and hosts an annual fundraiser, *March Hoops to BEAT Blindness*, to support research at the Kellogg Eye Center.



Accomplishments



Enacted Health Information Exchange (HIE) strategy to enhance patient care and safety.



Delivered data and reporting for Dean's Commitments project to manage \$350 million in funds.



Completed statewide reporting for the Michigan Primary Care Transformation (MiPCT) project.



Piloted machine learning with DataRobot and Ayasdi applications.



Consolidated and managed Tableau licenses for Michigan Medicine.



Provided data in support of Development Office's Grateful Patient Program.



Launched dashboards to support MiPART Capacity Management program.



Delivered custom reporting to the Michigan Medicine Compliance Program for the Break the Glass program.



Achieved HIE Qualified Organization status in the state of Michigan.



Redesigned statewide database architecture into a multi-project platform.



The **Architecture & Operations Management (AOM)** team designs, deploys, and supports application platforms, integration solutions, and computing devices. AOM is dedicated to advancing security, quality, and availability of services and data across Michigan Medicine. The team connects patients and business partners with relevant data for both clinical and business needs, while helping to ensure the electronic medical record environment is accessible and secure. The team's frontline staff deliver consistent customer service via walk-up, phone, and email options to support computers, printers, telecommunication, and mobile devices.

Services

- » Service Desk support and Help Me Now
- » Secondary Alerts Notification System (SANS)
- » Aspect Automated Call Distribution (ACD) System & Paging
- » Application Program Interface (API) Manager
- » CoreImage services
- » MiChart support
- » Device support services
- » A/V support services
- » Telemedicine/virtual health support
- » Document management
- » Web and data management platforms
- » IIB enterprise integration engine
- » Mobile device management
- » Major incident response for IT, security, and facilities

Leadership

John McPhall
Senior Director

With more than 26 years of healthcare IT experience, John implemented several electronic systems used within Michigan Medicine. He uses that experience today as he oversees the direction of device engineering, platform and integration services, telecommunications, electronic medical record infrastructure, and customer support.

Accomplishments



Opened a third Help Me Now location in Towsley to provide easy walk-up IT support for clinical customers.



Created a new API directory to provide a rich repository for developers, researchers, and others to conveniently and securely use institutional data.



Improved security by identifying and categorizing 6,000 previously unknown devices that were accessing the Michigan Medicine network.



Partnered with Michigan Medicine facilities on nearly 100 projects, including the FY18 opening of the new West Ann Arbor Health Center, which required the deployment of 500 computers.



Activated the Secondary Alerts Notification System (SANS) at the University Hospital and the Frankel Cardiovascular Center to facilitate alarms and alerts to clinical staff.



The **Enterprise Infrastructure** team secures, manages, and architects Michigan Medicine data centers, networks, and communication infrastructures. The team is responsible for all of the technical infrastructure of Michigan Medicine, including data centers and communication facilities; wired, wireless, and in-house cellular networks; spectrum management; communication; complex device management; fiber/wiring plant; hosting; directories, databases, storage; and IT enterprise continuity of operations. They collaborate with and support all Michigan Medicine service providers to assure the security, stability, reliability, scalability, and economic management of the institution's technology infrastructure.



Leadership

Joe Kryza
Senior Director

Joe Kryza leads the consolidation and standardization of Michigan Medicine Enterprise Infrastructure services, resulting in improved customer service and optimal economic value.

Services

- » Identity & access management
- » Analog and VoIP (Voice over Internet Protocol) services
- » Wired, wireless, and in-house cellular networks
- » Michigan Medicine primary and secondary data centers and services
- » Hosting services
- » Database, storage, and file services
- » Email services
- » Enterprise monitoring and Splunk services
- » Communication-room management, wiring, and fiber services
- » Disaster-recovery services

Accomplishments



Moved Pathology, Radiation Oncology, and the Medical School systems into the primary data center as part of a collaborative effort to improve security, support, and disaster recovery.



Deployed enterprise collaboration services (Exchange email and Skype for Business) for 40,000+ customers.



Implemented two-factor authentication (Duo) for VPN and Outlook Web Access.



Implemented wireless Network Admission Control for Michigan Medicine, improving wireless security and stability of operations.



Deployed new MiChart infrastructure, significantly improving MiChart response time to enable best practices.



The **Information Assurance: Michigan Medicine (IA:MM)** team was established to protect the systems, data, and identities that Michigan Medicine relies on. IA:MM directs information security activities and programs for the institution. The members of the team educate and prepare staff and students for increasing cyber threats to the Michigan Medicine information environment. The team also proactively mitigates IT security risks in partnership with the greater U-M community. The IA:MM team enables teaching, learning, research, and healthcare in a large, open environment through balancing risk in an increasingly threatened environment. As part of the broader U-M information assurance program, IA:MM also collaborates and coordinates with university efforts and participates in the development of university-wide security, compliance, and privacy strategies and strives to implement best-practice cybersecurity efforts.



Leadership

Jack Kufahl
Michigan Medicine
Chief Information Security Officer
(CISO)

Under the direction of the U-M CISO, Jack Kufahl directs all information assurance activity across Michigan Medicine to ensure the confidentiality, integrity, and availability of electronic information, identities, and systems for the associated information services and interconnected resources critical to patient care, research, and education.

Services

- » Security and risk consultation
- » Security policy, standards, and guidelines development
- » Security and risk assessment, analysis, and treatment
- » Education and awareness
- » Incident investigation, response, and recovery

Accomplishments



Formed the Information Assurance: Michigan Medicine team in July 2016.



Identified Michigan Medicine's information assurance strengths—disaster recovery and business continuity, education and awareness, and recovery.



Continually focused on maturing capabilities related to strategy and executive sponsorship, cybersecurity intelligence, and securing applications.

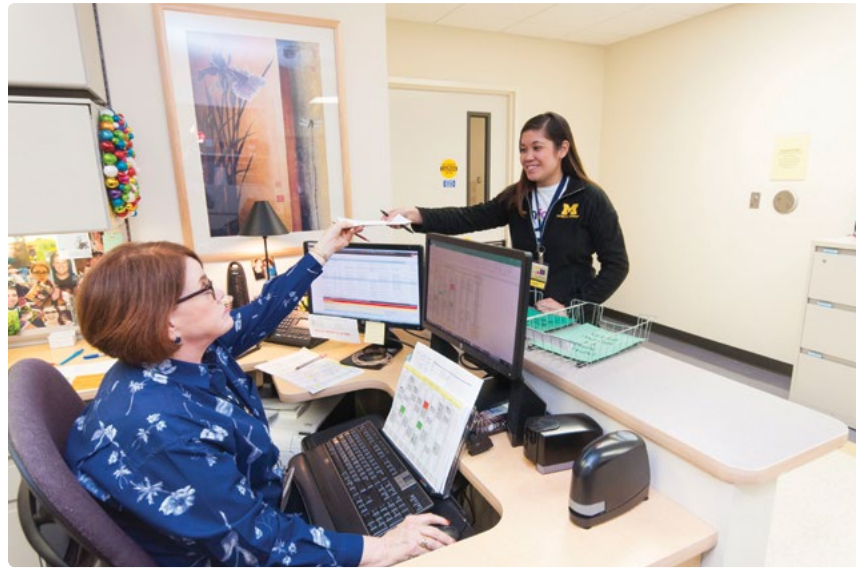


Defined immediate objectives and a long-term strategy for information assurance at Michigan Medicine through the use of a capability maturity assessment.



Positioned this diverse team to offer a collection of perspectives for building a strong information assurance program focused on advancing the cybersecurity maturity capabilities and educating and preparing the Michigan Medicine workforce.

Finance & Administration



The **Finance & Administration** division provides support to all HITS employees. The division oversees the HITS budget, which supports all of the day-to-day operational activities and capital projects across each HITS division. Finance & Administration is also responsible for forecasting, procurement, contract management, facilities, space management, position control, employee onboarding, timekeeping, and reception. Additionally, the team coordinates institutional responses to benchmark surveys, cost reporting, and financial audits for IT.

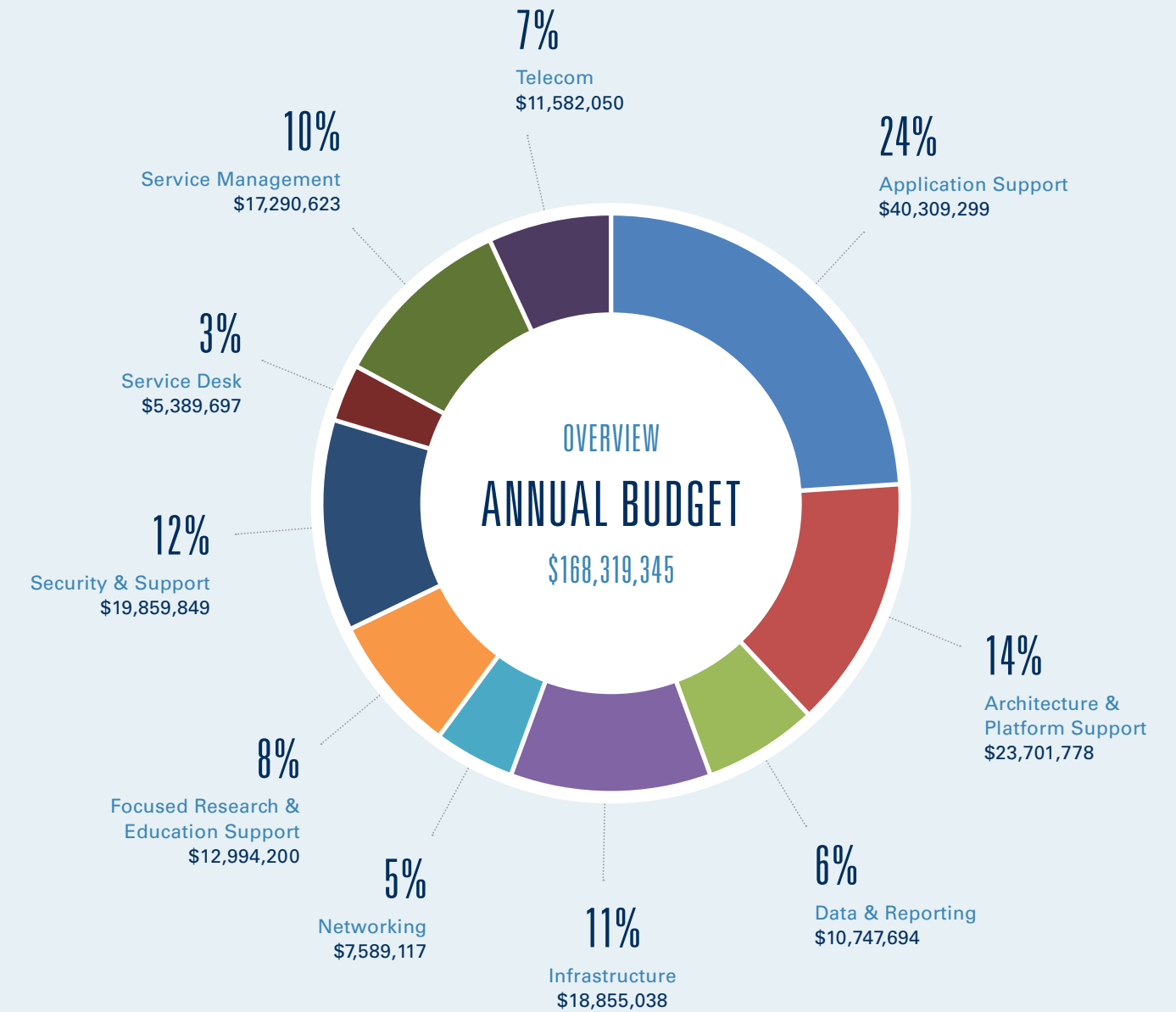
Services

- » Budgeting, forecasting and variance analysis
- » Project budgets and capital investments
- » Financial management and reporting
- » Purchase order and invoice processing
- » IT Requests for Proposals (RFPs), contracts, and amendments
- » Facilities and space management
- » Reception
- » HR coordination for recruitment, hiring, and onboarding of new employees
- » Payroll and timekeeping processing
- » Internal financial controls and administrative management

Leadership

Brian Kwapis
Senior Director

With 17 years of experience at Michigan Medicine, Brian oversees the financial and administrative teams within HITS. His responsibilities include finance, procurement, contracts, facilities, and HR. Prior to Michigan Medicine, Brian's past experience includes working in the automotive industry in manufacturing and financial leadership roles.





FROM BATCH COMPUTING TO INTERACTIVE COMPUTING

This decade saw the explosion of social interaction on the campus mainframe, a major shift from using computers primarily for batch-driven analysis toward using them for real-time interpersonal collaborations. Online registration transformed the process for enrolling in classes through CRISP (Computerized Registration Involving Student Participation). The CONFER and CRISP innovations both emerged from student projects, a common theme throughout the decades at U-M where “innovations at the edge” are moved to wide-scale deployment, benefitting many at the university and beyond.



Technology was integral in helping clinicians effectively care for patients, and it required a lot more space.



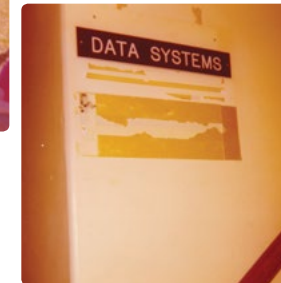
GENERATIONS OF HEALTH INFORMATION TECHNOLOGY



2017 marks a special year for the University of Michigan as we celebrate our bicentennial. In an effort to document and preserve the history of information technology throughout the generations, we partnered with the greater U-M community to develop and produce a Michigan IT Timeline. This section of our inaugural Year in Review reflects on the various legacies that came together last September to form Health Information Technology & Services. This is only a small part of the larger narrative of Michigan IT, which can be explored by visiting the interactive timeline at timeline.it.umich.edu.



Our employees worked hard but found some time to relax at the annual picnic, a tradition dating back to the 1960s.



Data processing and storage took on many forms, including magnetic tape reels.





FROM MAINFRAMES TO PERSONAL COMPUTERS AND THE GROWTH OF THE INTERNET

During the 1980s, deployments of the IBM PC, PC clones, Apple, and advanced workstations (Apollo, Sun, etc.) grew from single digits to tens of thousands. At one point, the Ann Arbor campus was the largest single site of Macintoshes in the world. Investing in campus computing sites brought access to students throughout campus. Local-area and wide-area networking also grew. Token Ring and Ethernet networks were connected through U-M's first fiber optic network backbone and linked PCs across campus. Michigan's satellite connection to the emerging Internet was quickly eclipsed by dedicated connections to NSFnet. The Merit Network partnered with MCIT and IBM to greatly expand NSFnet, establishing what later became the core of the commercial Internet. (U-M was a founding member and host of Merit's staff and facilities.)

Lab procedures and financial billing data were stored on thousands of punch cards. Occasionally, the cards were exposed to lab fluids like blood and urine, causing issues with the card reader. The first card-free electronic medical records were a welcome sight at the Health System!



Celebrating the new Health IT presence upon moving from campus to Arbor Lakes.



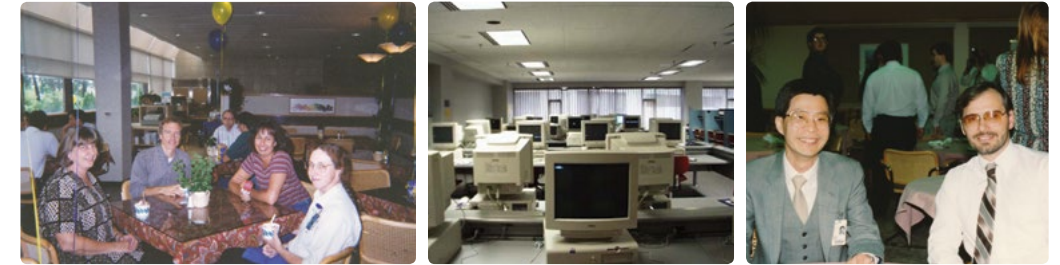
The annual picnic continued to be a time to celebrate accomplishments. The tradition of the Tug-of-War began in the early 1980s.



BRACING FOR THE FUTURE

The 1990s truly became the networked decade. Mainframe computing phased out and the World Wide Web became the user portal to the world. At U-M, Wolverine Access emerged as the entry point to online administrative functions for students, faculty, and staff, and CareWeb became the online medical record system for healthcare providers. Uniqnames provided a single login identity for the U-M community. U-M became a charter members of Internet2 and, through staff loans, Internet2's headquarters was established in Ann Arbor. The capacity of Internet2's national research and education network was tens of thousands of times more than NSFnet's in the '80s. Distance was essentially eliminated as a barrier for academic collaboration.

In 1995, the MCIT Help Desk was highlighted in the first MCIT annual report.



MCIT shows Maize 'n' Blue pride with a new banner at the annual picnic.



A/V teams join faculty to film students practicing their comprehensive clinical assessments as a feedback tool.



By the 1990s, desktop computers became standard across work areas making physical data storage a critical concern.



THE HORIZON IS OURS

Empowered by the limitless ability of technology and information, the University innovated in many domains. Wireless connections shifted to the forefront of connectivity for mobile users. The Health System Data Warehouse provided a unified platform for analysis and reporting on health data, and medical students began streaming lectures and using flextime quizzing. Physicians started using CareWeb for online coordination of care and ordered medications using CareLink across a fleet of managed workstations. IT support unified across the basic sciences, and the purchase of the NCRC building complex facilitated the expansion of services as IT became critical to nearly all business processes.



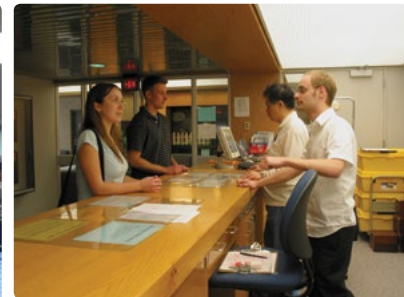
Partnering with faculty to use technology in exciting ways helped improve patient care and provided cutting-edge methods of learning and teaching for our medical students.



The Clinical Simulation Center opened, enabling resident physicians to develop low-frequency/high-acuity skills by practicing on mannequins or computers, with no risk to human beings.



As the Medical School curriculum evolved to include computer use for most classes, students studied in the new Mac computer lab, supported by MSIS.



Exceptional technology support continued to make our technical staff integral to the success of researchers.



DATA IS THE FUTURE

The current decade is focused on the increased importance of data—leveraging its vast potential while securing it from cyber threats. Some notable accomplishments include transitioning from CTools to Canvas as U-M's academic learning management system, introducing a new medical student curriculum heavily reliant on technology, deploying MiChart (the Epic electronic health record system), building and moving into the North Campus Data Center, establishing a shared platform for all departmental websites, and the formation of Health Information Technology & Services.

MSIS hosted many Hackathon team events for creating usable software for research, clinical operations, and education.



2016 Tug of War winners were celebrated at the first HITS Annual Picnic.



The renovated Taubman Health Sciences Library was designed with technology integrated into student spaces.



LOOKING FORWARD

Reflecting on the legacy of Michigan Medicine IT, including the formation of Health Information Technology & Services over the past year, our unified organization is strategically positioned to promote successful collaborations, innovations, and problem solving. Our combined efforts and partnerships with faculty, researchers, staff, and medical students will enable the continuation and further development of Michigan Medicine's research, education, and patient-care mission.

We will work with purpose to provide services that enrich the Michigan Medicine experience. We will strive to break down silos and enable alliances and partnerships across U-M and beyond. We will encourage professional growth and empower our staff to innovate and achieve secure, reliable, and cost-effective solutions.

By focusing on improving operational excellence, we can ensure every customer interaction is simple, correct, and direct—delivered with empathy, efficiency, and pride. Through the development and use of technology, we will continue to enrich the Michigan Medicine experience. Our direct connection to the meaningful work happening across the institution will motivate us to make a positive impact on the world.

2017

OUR UNIFIED HITS ORGANIZATION IS DEDICATED TO MICHIGAN MEDICINE

AND ITS MISSION OF DELIVERING PATIENT CARE, EDUCATION, AND RESEARCH.

2022

"Looking ahead, we will continue to invest in staff and leadership development as we strive to deliver exceptional customer service."

Andrew Rosenberg, M.D.
*Chief Information Officer
Michigan Medicine*



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