

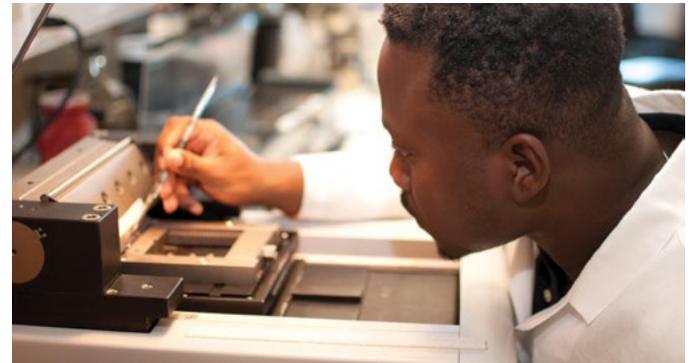


2017-18



HITS

YEAR



HEALTH INFORMATION
TECHNOLOGY & SERVICES

IN



REVIEW



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MESSAGE FROM THE CIO

We can't truly appreciate the current state of health IT without reflecting on how far we have come. Not long ago, all medical records were captured on paper, sharing charts required a fax machine or courier, and accessing information was an incredibly tedious process. But over the past decade, monumental advances have transformed how we store, share, and analyze health data.

We are now in an era where care providers can accurately diagnose patients remotely (page 12), researchers are using electronic tools for peer collaboration within and outside U-M (page 14), and medical school administrators can use real-time information to measure medical student progress (page 16).

Our purpose at Michigan Medicine is ultimately to heal. We are here to care for patients and their families, discover treatments and cures for major health issues, and educate the next generation of medical students. Technology plays a key role in augmenting all of these activities. It makes us more efficient and simplifies our work so we can focus on what really matters — people.

This publication provides a snapshot of how Health Information Technology & Services (HITS) collaborates across U-M to improve productivity, support innovation, drive cost efficiencies, strengthen compliance preparedness, and develop a more coordinated approach to delivering IT services. We hope these stories provide another dimension of the impact technology plays in advancing and supporting Michigan Medicine's mission.

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

STAFF SPOTLIGHTS

HITS staff share a single passion: to leverage IT to improve the lives of patients, researchers, educators, and colleagues. They draw upon their rich backgrounds and experiences to bring out the best in their teammates as they all advocate for HITS customers and serve Michigan Medicine.

900

Number of staff members in the HITS organization



Sue Boucher

IS Project Manager

I'm passionate about delivering high-quality services and maintaining a positive organizational culture. I've dedicated 38 years to providing the best possible service I can to our customers. I'm grateful for them, and I want to do what I can to help them and let them know we care. I'm equally enthusiastic about developing a community of appreciation, growth, and fun while we strive for a work/life balance.



Ryan Echlin

Product and Application Manager

I endeavor to help Michigan Medicine researchers find solutions to their IT problems. I advocate for researchers within HITS and work to make sure their needs are met and their perspectives are represented. The clinical mission advances when innovation and discovery occur as part of the research mission. That's why it is very satisfying when I am able to assist researchers in doing more and better research. I'm proud of that work.



Sandy Hewitt, PMP

Business Systems Analyst

I work with a great team of people who support the Clinical Trials Management System. We focus on integrating the clinical trials enterprise and clinical care delivery systems. My latest project involves implementing a new billing workflow designed to decrease errors in research patient billing. It's exciting to work with our stakeholders to contribute to the clinical trials transformation taking place at Michigan Medicine.



Brent Gallagher, M.S.

Applications Systems Analyst/Programmer

I've found the combination of IT with clinical care and operations to be particularly interesting and rewarding. I primarily support the computer applications that interact with cardiac medical devices, and I really enjoy the feeling of contributing to improving patient experiences. My favorite projects bring significant improvements to healthcare, like the new hybrid operating room at the Frankel Cardiovascular Center, which uses innovative technology for complex heart procedures.



Michelle Geerlings

Windows Systems Engineer, Team Lead

I've spent my entire career in the IT field. In my first job, I created a network for a small office. My favorite aspects of my job now are problem solving and addressing the challenges of constantly changing technology in this vast environment. Not only is HITS the largest shared-services department, but we also serve more than 26,000 Michigan Medicine faculty, students, and staff and support more than two million patient visits.



Donna M-U Hart, Ph.D., M.A.

Brand/Product Analyst

I've had the great fortune of working in several areas, including Service Desk (developing the original Knowledgebase), Data Center (technical documentation), and EDEM (rolling out apps for our Core devices). I've also volunteered as an interpreter in Italian at the hospital. My current role is focused on sharing information about the great things we do, including our infrastructure projects and collaboration with campus. I enjoy seeing HITS as one big "extended family."



Alex Jolliet

Vulnerability Analyst

I like being able to say my work helps keep Michigan Medicine secure. I enjoy the pace of the work, too; it moves very quickly and is novel and exciting. I focus primarily on policy and contacts for research faculty. I make sure vulnerabilities are prevented or remediated in a timely manner. I enjoy getting to know our researchers and their challenges and finding ways to keep their research data secure.



Michael Kish

Desktop Support Specialist, Team Lead

I searched for a career that would be exciting, challenging, ever-changing, and would provide growth opportunities. I found it, and much more, with HITS. In managing hardware and software, balancing security and policy issues, and partnering with other HITS staff members, I'm able to help the U-M Medical School achieve organizational efficacy. I'm pleased to contribute to the development of future physicians and, ultimately, to an improved patient experience.



Mahathy Kuchibhatla, M.S.

Business Systems Analyst

Building and managing the MyUofMHealth.org (Patient Portal) for the last five years has been an exciting journey. Multiple MiChart applications are involved to support it, and I love working with several outstanding HITS teams. I'm pleased to say more than 360,000 patients are active on the portal. We often hear from patients that the portal enables them to live better. This is the best part of working in healthcare IT.



Joey Maki

Receptionist/Administrative Assistant

I like the work I do and feel a sense of pride and fulfillment in helping my colleagues. Whether it's ordering supplies, supporting the learning management system, or assisting in the onboarding and offboarding processes, it's important to me to help things run a little more smoothly. I enjoy getting to know my colleagues, and I aim to make a positive impact in my division and HITS.



Jeannette Milette

Training Specialist

I'm very passionate about learning and development, so moving into the specialized role of trainer was perfect for me. I teach inpatient nurses how to efficiently use MiChart, the electronic medical record. It's my privilege to welcome, on average, about 20 new nurses to Michigan Medicine every other week. Their dedication to their jobs is inspiring, and it's very rewarding to support them in delivering high-quality patient care.



Kelly Miller

Business Intelligence Analyst

I'm an ardent proponent of the power of data analytics in moving toward better and more efficient patient care. For example, I create dashboards so business and clinical units can quickly know what's going on to make strategic, real-time decisions. I'm deeply passionate about promoting analytics in health care. I choose to work here because of the impact I can have.



Archie Reddy, M.S.

Data Architect Lead

My work over the past 19 years building the Health System Data Warehouse has been fun and fulfilling. The HSDW is a collection of health data used by many groups across Michigan Medicine for conducting clinical research, streamlining financial operations, and improving patient care. This pursuit has allowed me to do what I enjoy most: innovating solutions for better patient outcomes. I'm excited for the many uses of this comprehensive database.



Lovida Roach

Business Systems Analyst

My favorite part of my job is helping others achieve their learning and training objectives. I truly enjoy working with people, whether it's an individual or a group. I'm proud to share my expertise and knowledge of MLearning, the system that manages employee training. My work directly impacts thousands of employees and ensures that our patients receive the excellent care people have come to expect at Michigan Medicine.



John Walsh

DevOps Lead

I use IT to solve business problems throughout Michigan Medicine, such as automating a time-consuming process or streamlining a complex process. I enjoy working with our stakeholders to build systems together that are secure, reliable, and compatible. My favorite parts of my job are the people I work with, both within and outside my team; how mature our HITS organization is; and how we continue to grow and innovate.

As Michigan Medicine Grows, So Does the Need for Technology

The first thing you notice when entering the new West Ann Arbor Health Center might be the welcome desk, floor-to-ceiling windows, or charming artwork. It probably isn't the Wi-Fi access points, label printers, or network cables.

Randy Smith, a network architect with HITS Enterprise Architecture, knows how integral that technology is to the health center's daily operations. He worked with architects, engineers, and electricians for two years to ensure the 75,000-square-foot health center met the needs of its new occupants.

"Designing and building the infrastructure is something most people don't think about," said Smith. "So many details happen behind the scenes to ensure every piece of technology works — whether it be the phones, fire alarms, or security cameras."

During a recent tour, Smith showed off a communication closet he calls the "brain of the building." While the data racks may look bare early in the health center's existence, Smith said his involvement during the design phase ensures the center is capable of supporting future technology.

"It's easy to assume the communication closet can be located in a small, back corner of the building," Smith said. "My goal is to design a communication closet that will support the building for the next 20–25 years. That means it needs the space to grow as more devices become internet protocol-based."

West Ann Arbor, home to 20 adult and pediatric primary- and specialty-care services, is part of a five-year investment strategy to increase patient access to U-M providers and grow the clinical workforce. A new facility in Brighton, an expansion of East Ann Arbor, and a new inpatient tower are also underway.

About 50 HITS staff supported the West Ann Arbor project, including Cindy Belcher, a desktop support supervisor with HITS Architecture & Operations Management. Her team installed 400 computers and 175 printers and met with the Ambulatory Care clinicians to understand their specific workflows and make recommendations for integrating IT.

"If a care team will be rolling in equipment like a fetal heart-rate monitor, we need to ensure there are enough jacks in

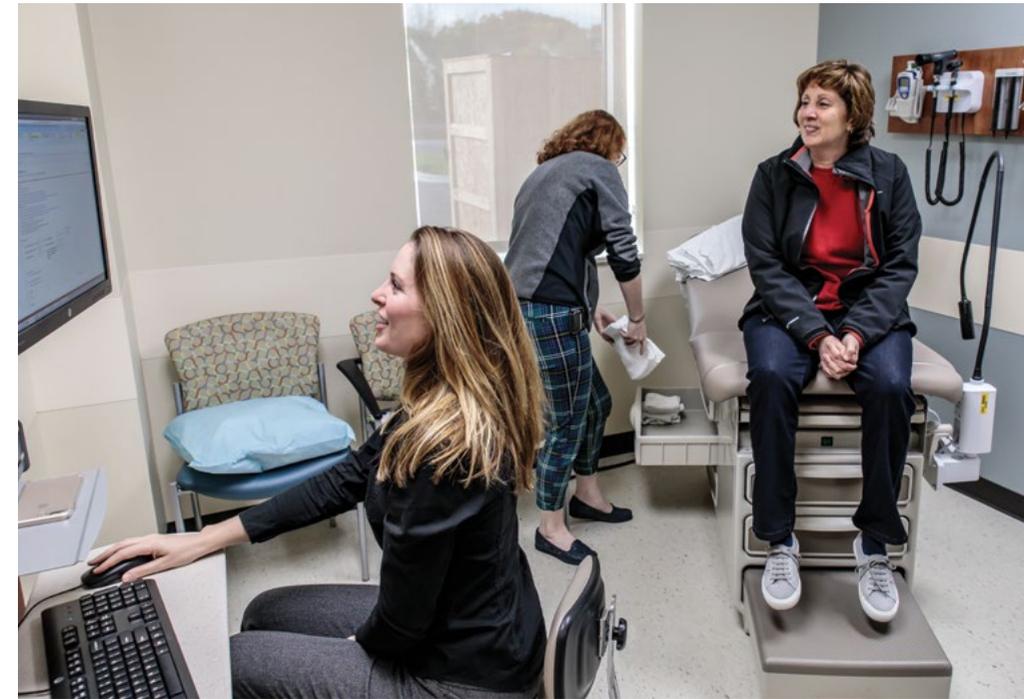
the room," Belcher said. "We recommend high-end machines for specialty software, and in cases where groups share team rooms, we can predict and remedy any software compatibility issues."

Belcher acknowledged construction delays sometimes impact her team, but they never want to be the reason a building doesn't open on time.

"When things get delayed, it just means we have less time to get in and do our jobs," Belcher said. "We gained access to West Ann Arbor when it was still an active construction site. Our team was wearing hard hats and safety glasses as we unboxed equipment and put computers, scanners, printers, and monitors in place."

The effort of the HITS staff is recognized by others involved in opening West Ann Arbor.

"Working directly with HITS staff is important for making sure we have the right data available in key places," said Yvette Salamey, senior project manager with Ambulatory Care. "Everyone has been receptive and accommodating each step of the way."



1.66
MILLION SQUARE FEET

Michigan Medicine's
expected footprint growth
in the next five years

“Working directly with HITS staff is important for making sure we have the right data available in key places.”

Yvette Salamey



Virtual Visits Provide Patients with Care from the Comfort of Their Homes



This wasn't how Terri wanted to spend her weekend. It was Friday night when she first started noticing signs of a urinary tract infection. She had a busy schedule, and now this recurring condition was threatening to derail her plans. Hoping for quick relief, Terri signed into MyUofMHealth.org and initiated an eVisit by answering a series of questions about her symptoms, similar to those she would be asked during an office visit.

"Within hours I received a response, and a prescription was waiting for me at the pharmacy," Terri said. "By Monday, I was feeling so much better. The whole experience was awesome, and it saved me a lot of time and hassle."

Michigan Medicine introduced eVisits to its adult primary care patients in early 2018. Terri is one of hundreds of adult

patients using these virtual visits to receive care plans or prescriptions from their healthcare providers for non-emergency conditions, including flu-like symptoms, red eye, and sinus problems.

Clinicians responding to eVisit requests can access the patient's health record and review his or her health history. Most requests receive a same-day response. Patients pay \$25 for the online visit, which is comparable to the amount charged for an office visit. eVisits are available seven days a week.

As flu season peaked, so did the number of eVisit requests.

"This past flu season was particularly bad. eVisits enabled patients to stay in their homes and out of the clinics where they could potentially spread the virus," said Alison Neff, director of Telehealth and

\$3 MILLION

Average revenue collected each month through the U-M Patient Portal in FY2018.

1,000+

Patients who have participated in an eVisit since the beginning of 2018.

Ambulatory Technology. "We are keeping patients out of the emergency room while creating more capacity in our ambulatory clinics so we can care for patients who need to be seen."

U-M Medical Group leadership conservatively estimates seven percent of ambulatory care visits will take place virtually within five years and hopes that number will grow to fifteen percent over the next decade.

"Telemedicine is the next major technological disruptor in healthcare. It will radically change the way we provide care

and result in patients conducting the majority of their healthcare over a mobile smart device," Neff said. "We are building a world-class telehealth platform that will allow us to scale our services exponentially over the next several years."

The advent of telemedicine and virtual visits is making an impact across Michigan Medicine. The General Surgery Clinic is making follow-up appointments easier for patients who can opt for live video visits with their surgeons after their operations. The TeleStroke program connects Michigan Medicine stroke and neurology experts

with patients at other Michigan hospitals to provide real-time stroke diagnoses and care. And patients with a chronic health condition will soon be able to send their vitals to their care providers from the comfort of their homes.

"Our goal is to keep patients healthy and out of the hospital. Patients will be able to receive text reminders to take their medications, send their weight and blood pressure stats remotely, and see their doctor via video visit," Neff said. "This should have a huge impact on readmission rates, improve patient health, and lower the cost of care."

“

Telemedicine is the next major technological disruptor in healthcare. It will radically change the way we provide care and result in patients conducting the majority of their healthcare over a mobile smart device.

Alison Neff

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844

TOTAL USERS

415 STUDENTS

281 STAFF

148 FACULTY

Electronic Research Notebook

A Tech Tool for Simplifying Research Data Management

In November 2017, HITS and the Michigan Medicine Office of Research launched the Electronic Research Notebook (ERN), a tool that has already made its mark in Michigan Medicine research. Broadly, the ERN automates much of the storage and retrieval activity required on the part of researchers—from brainstorming, through data collection, collaboration, and archiving.

Specifically, the ERN aids researchers in accomplishing the following:

- Creating, managing, and accessing data and lab records across any platform
- Selectively assigning access to multiple users
- Linking to data from other locations, such as U-M Box
- Tracking activity of every lab member
- Digitally signing and date stamping to protect internet protocol
- Retaining document versions for convenient access to a full history
- Promoting secure and easy collaboration within and outside the university

The tool is available, at no cost, to all Michigan Medicine faculty, students, and staff. It offers researchers on all three campuses the benefits, efficiencies, security, and long-term cost savings of centralized, paperless data storage. Users can manage their labs efficiently, protect intellectual property, secure collaboration, and easily track samples.

“I am delighted to be the executive sponsor of such a powerful tool. The ERN includes an impressive range of features designed specifically to address modern scientific workflows and data management challenges,” said George Mashour, M.D., Ph.D., who is associate dean for clinical and translational research in the Medical School and executive director of the Michigan Institute for Clinical & Health Research.

University researchers, students, and faculty can all share in the benefits the ERN offers, including the following:

- Cloud-based storage, accessible wherever internet access is available
- Easily managed, unlimited data storage that is safe from loss

- Secure, role-based access to data
- Data, notes, and file retention even after a lab member leaves
- Digital data storage that is ready for automated analysis (unlike paper)
- Long-term cost savings
- Searchable, easy data retrieval
- Convenient document organization and versioning

“We are proud to offer this IT service at no cost in support of scientific discovery at the University of Michigan,” said Erin Dietrich, senior director, HITS Research Applications & Advanced Computing. “The success of the ERN is a result of collaboration between HITS, ITS, U-M colleges and schools, and the vendor LabArchives. It is a secure, digital tool that eliminates paper and accelerates and enables research.”

Tech Innovation Redefines Medical School Curriculum

HITS has been partnering with the Office of Medical Student Education (OMSE) to drive technological innovations in support of the recent U-M Medical School (UMMS) curriculum transformation. A recent example of this collaboration is Learning Outcomes, a custom software tool that aggregates individual student assessment results. Faculty and students can now use a single dashboard tool to track student progress and provide important data for informing goal development and learning plans. Learning Outcomes offers the opportunity to focus on student strengths and promotes dexterity in addressing learning gaps sooner rather than later.

“The ability to review medical student progress in this holistic fashion strengthens the overall medical student experience,” said Johmarx Patton, M.D., M.H.I., assistant director, HITS Education & Training. “Medical students are benefiting in ways

250

Students accessing Learning Outcomes every day

that were not as easily accomplished when I was a student.”

The application's efficiency goes beyond the dashboard interface. HITS developers and OMSE staff used to spend many hours manually compiling data for use in Dean's Letters (Medical Student Performance Evaluations that accompany residency applications), Academic Review Board reporting and hearings, and routine tracking by counselors. Learning Outcomes streamlined these labor-intensive processes.

Medical School Assistant Dean for Curriculum Michelle M. Daniel, M.D., believes the tool is valuable to the UMMS community. “As we move toward full actualization of competency-based education, our ability to measure achievement in core competencies beyond medical knowledge is critical.

“Learning Outcomes allows us to assimilate hundreds of inputs from

800

Total medical students currently enrolled in the U-M Medical School

diverse sources to make decisions about learners' progression in communication, patient care, professionalism, and more. The system facilitates holistic review by our competency committees, improves the ability of our faculty coaches to provide meaningful feedback, and helps learners look at their own data for themes with an aim of self-improvement.”

A key element to the success of this project was the user experience, or UX. The senior business systems analyst at the UX helm was Claire Cabrera, HITS Service Management. “The most important thing for all of us is that technology is useful, provides value, and is easy to use.”

Keeping the user front and center during the development process, Cabrera continually found herself asking key, user-based questions during interviews, focus groups, and other surveying opportunities: What will it be like for our customers as they

use this application? Is it easy to use? Is anything confusing? The Learning Outcomes team then used the answers Cabrera gathered to finesse the usability of the tool.

“This system is a success,” declared Paul Morrison, assistant director, HITS Software

Delivery. “The developers, Mark Schneyer and Leif Myklebust, worked closely with several groups, both internal and external to HITS, and carefully crafted an incredibly useful tool that helps our customers. Additionally, it was difficult and expensive for HITS to support three labor-intensive

applications; now we have a single, effective solution. It's a win for everyone, and that's why it's exciting.”



“

The ability to review medical student progress in this holistic fashion strengthens the overall medical student experience.

Johmarx Patton

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Barcode Scanning Eliminates Breast Milk Misadministration

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There's a great sense of accomplishment and pride to see a system is working and doing what it's supposed to do.

Matthew Enell

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Thanks, in part, to a barcoding system developed by HITS, C.S. Mott Children's Hospital and Von Voigtlander Women's Hospital (C&W) virtually eliminated the misadministration of breast milk to infants in their care.

C&W is home to the first 24/7 formula and breast milk preparation room in a pediatric hospital nationwide. Since

opening in 2011, the Milk Room's team stores, prepares, and delivers mixed formulas and breast milk to infants.

“When we initially opened, we saw a decrease in misadministration—the wrong baby getting the wrong breast milk. Having one centralized operation resulted in fewer mix-ups,” said Sara Tutor, manager of the Milk Room.

While misadministration was rare, it did occur. Between 2014 and 2015, three patients received formulas that conflicted with their documented allergies. Between 2013 and 2015, 18 incident reports were filed involving near misses or actual administration of breast milk to the wrong patient.

“When something like that does happen, it has a downstream effect. You have to notify two families and test the donor mother and baby for HIV and hepatitis. This can make patients doubt their care,” Tutor said.

An interdisciplinary team of nurses and support staff, including the MiChart electronic medical record team, was formed to address the allergy component. “We wanted allergy alerting on our orders so providers would receive a notification if they entered an order that was contradictory to a patient's allergies. As we moved forward, the initiative to include barcoding and scanning breast milk was introduced,” Tutor said.

“We decided the best solution was to mimic other successful workflows for

commonly used medication and food allergies,” said Matthew Enell, Pharm.D, clinical informatics pharmacist with HITS Clinical & Operational Applications. “Barcoding would mean that instead of relying on a manual double-check, nurses could scan a patient's wristband and the breast milk. If the barcodes match, they could administer the milk.”

During implementation, Enell created new orders for breast milk and formula, set up the scanning capability for breast milk, and created new labels. The complete process went live in August 2016, and the results speak for themselves.

“We have had no incidents of patients getting wrong milk since we went live with the new functionality,” Enell said. “I worked on this for more than a year with lots of different people, and all of the hard work paid off. There's a great sense of accomplishment and pride when you see a system that is working and doing what it's supposed to do.”

Tutor credits the Milk Room's 365 Days of Safety Award to the engagement of a variety of people across the health system.

“We've always had a positive experience working with the MiChart team. Matt did a great job learning about our workflow, and he's continued to support our operation,” Tutor said. “To be recognized by C&W leadership and administration for our work is very meaningful. It gives us a goal to strive for every year.”



50—60%

C&W INPATIENTS DEPEND
ON MILK ROOM SERVICES
EVERY DAY

Discovering New Efficiencies and Savings Through Data-Center Consolidation

Vaccinations, early detection, and new cures have led to incredible medical breakthroughs over the past several decades. Today, advancements in precision health, wearable technology, genetic sequencing, and big-data analytics promise to reshape modern medicine even further.

A critical, yet often overlooked, factor in the advancement of healthcare is the underlying health IT infrastructure. As Michigan Medicine faces significant growth in data and applications, it is responding by changing the paradigm in data-center operations and management.



“We historically followed a distributed approach to information management: different departments stored critical information and medical records in different formats across multiple data centers managed by multiple vendors,” said Joe Kryza, HITS senior director, Enterprise Infrastructure. “That decentralized approach no longer works. Frankly, it’s a risk to our security, patient-care quality, and financial well-being.”

Michigan Medicine has two central data centers that host research, education, clinical, and administrative data—the North Campus Data Center and the Arbor Lakes Data Center. From a structural standpoint, the facilities are designed to be energy efficient and withstand hurricane-force winds.

“Michigan Medicine cannot function at high-occupancy levels without technology being constantly available and disaster tolerant. Recent natural disasters across the country have demonstrated the ramifications of storing data centers below flood lines and without redundancy,” Kryza said. “Centralized and parallel data centers help protect us from a local outage or

catastrophic loss, ensuring our telephones, clinical systems, and buildings continue to operate—even in times of crisis.”

To improve continuity of operations, develop consistent approaches to information management, and achieve cost savings, departments like Pathology, Radiology, and the Medical School are working with HITS to move their servers and storage into the central data-center locations.

“There was a long-standing concern that if a data center wasn’t within walking distance of a clinical lab, your ability to restore it in a nimble and timely fashion would be degraded,” said Ulysses Balis, M.D., a professor of pathology and computational scientist. “With modern software, placing laboratory information system servers in a remote location is no longer a risk to continuity of operations.”

Balis also offered that consolidating the number of data centers within Michigan Medicine makes financial sense.

“Over the past several years, economies of scale in storage make a compelling case for different departments not needing to run their own data centers; doing so

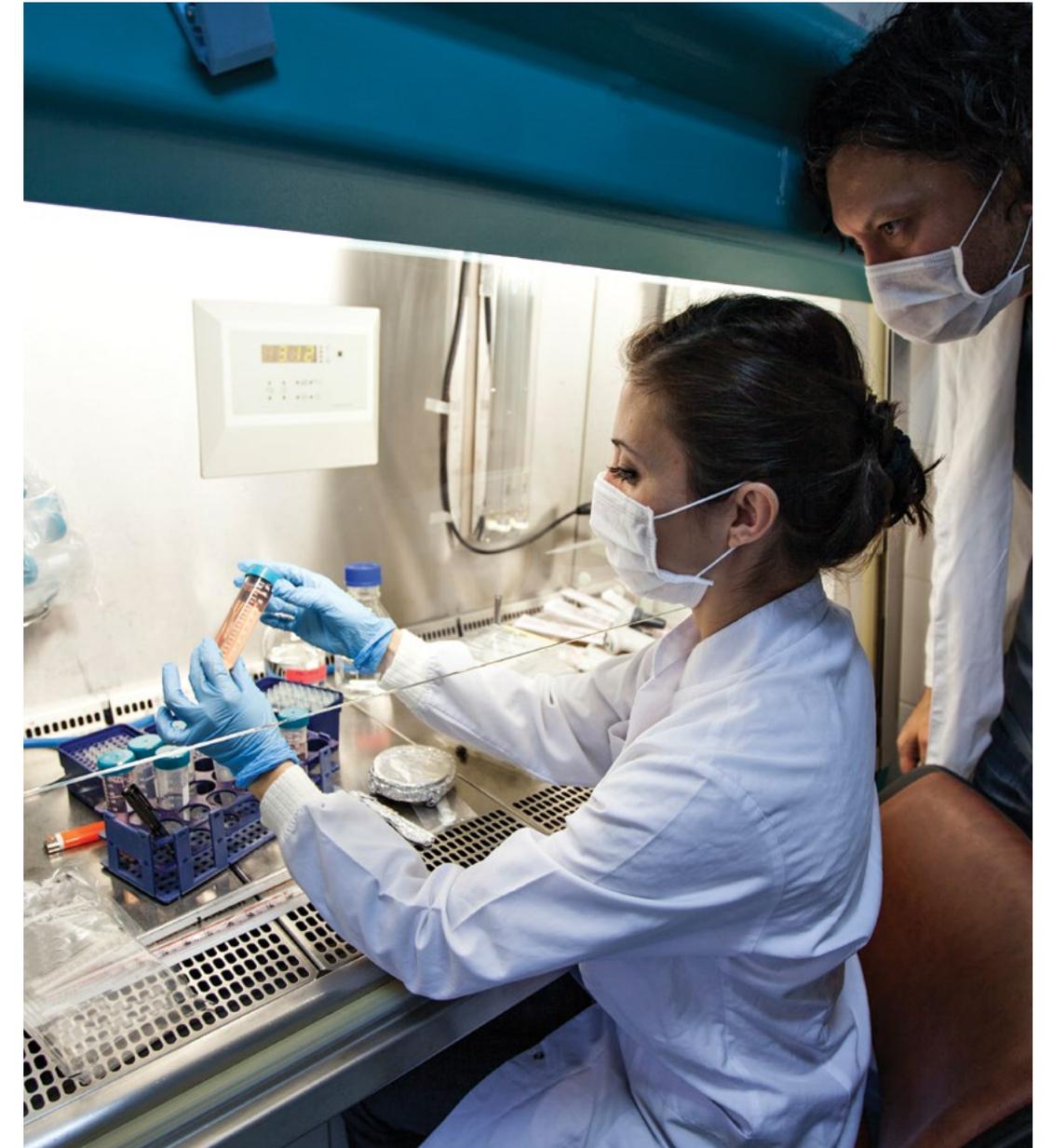
represents incremental expense that can and should be avoided. Using consolidated IT resources presents a great opportunity for the institution to save money.”

Pathology is already seeing some of the benefits of this collaboration.

“Our relatively small IT operation relies heavily on matrix training, meaning multiple individuals perform multiple roles. For example, four highly trained technical staff within Pathology Informatics used to maintain our 860 virtual servers,” Balis said. “We’re exploring every possibility for consolidation with HITS where it makes sense, as this will allow our staff to focus their expertise and efforts in the areas that truly require pathology-domain expertise, thus elevating our overall level of service and value to the enterprise at large.”

120

NUMBER OF
MICHIGAN MEDICINE
SERVERS
CONSOLIDATED
IN FY18





HITS Uses Data to Improve Customer Service and Communication

them to find solutions on their own,” said Erik Zempel, HITS senior manager, Service Management. “We needed a measurable way to mature our service delivery—a system to change how we get things done—while establishing confidence in HITS.”

In August, HITS introduced a common platform called ServiceNow, which enables customers to submit requests for help, browse a catalog of service offerings, and track the status of their requests in detail. The new tool also gives HITS the ability to improve intake, tracking, communication, and follow-up across all types of work.

“We live in a data-centric world. Success requires collecting, assessing, and acting on real-time customer data,” Zempel said. “By giving our teams these insights and capabilities, we are establishing a systematic way of handling issues, supporting operations, and informing improvement efforts built around common use of data.”

The HITS Device Operations team recently used data from ServiceNow to uncover and address areas for improvement.

“It used to be time consuming to get just a basic level of data. Our manual reports didn’t provide much detail beyond how many tickets we had and how many we had resolved,” said Aaron Gramling, HITS director, Architecture & Operations Management. “We can now see our predicted backlog and capacity in real time and

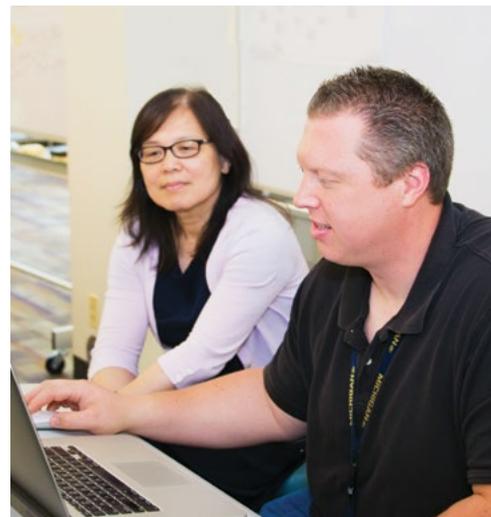
measure trends in customer satisfaction, resolution time, and rework. This allows us to pinpoint the actions that work under specific conditions. Our teams can use the information to improve their processes, make resource allocation decisions more effectively, and, ultimately, provide a better experience for our customers.”

Over a three-month period, Gramling’s team decreased the number of incidents reopened for incomplete or incorrect work by 22 percent and reduced the average time to resolve an incident by nearly three days.

“Backlogs are decreasing, we’re getting to issues faster, and we’re able to measure that progress,” Gramling said. “We’re also hearing a lot of positive feedback from our customers as to how we were able to address their concerns.”

Zempel said this transformation couldn’t have occurred without strong engagement from HITS staff.

“Our success is entirely due to the people who participated in the change. We had a fantastic team implementing and managing the ServiceNow platform and a vocal, passionate stakeholder community. Everyone in HITS had to learn this new tool and navigate an extremely complex organizational change. It wasn’t without its challenges, but we found that HITS staff were extremely adaptable and responded to the call when asked.”



“We live in a data-centric world. Success requires collecting, assessing, and acting on real-time customer data.”

Erik Zempel

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Michigan Medicine Receives \$2.5M for Sharing Health Data Electronically

Michigan Medicine will receive approximately \$2.5 million for completing a statewide incentive program to improve patient safety, enhance data integrity, and reduce workflow. The program, Common Key Service (CKS), provides a consistent and reliable way to match patients with their electronic health data across multiple healthcare settings by assigning a unique identifier for every patient in the state of Michigan.

“If you are on vacation, you can access your bank account fairly easily from any computer. However, if you are on vacation and need to go to the hospital, it’s much more difficult to access your health record,” said Myron Hepner, senior director of HITs Data, Reporting & Analytics. “Health systems use different computer systems and nomenclature, which significantly complicates their ability to match the right information to the right patient.”

Errors can and do occur, potentially resulting in higher healthcare costs and less-than-optimal patient care.

“CKS allows participating organizations to store and share unique patient identifiers, enabling care providers to match data

to patients with absolute certainty,” Hepner said. “By leveraging health information from multiple sources — other hospitals, specialists, clinics, pharmacies, or skilled nursing facilities — care providers get a more complete and current view of their patients.”

This is especially important in a large health system like Michigan Medicine, which sees patients from every county in the state of Michigan, many of whom are referred by other hospitals.

“Reliable health information exchange [HIE] has become critical for providing the high-quality care we are accustomed to providing at Michigan Medicine,” said Ranjit Aiyagari, M.D., chief medical information officer and associate professor of pediatrics and communicable diseases. “It is absolutely essential to have systems like the Common Key Service to ensure accurate patient matching for this seamless health information exchange to occur.”

CKS is sponsored by Michigan Health Information Network Shared Services (MiHIN) and Blue Cross Blue Shield of Michigan (BCBSM). Other participating organizations include Bronson Healthcare, Henry Ford Health System, The Metro

Health System, and Trinity Hospitals. More are expected to join as a result of BCBSM’s pay-for-performance (P4P) program, which recognizes hospitals that excel at care quality, cost efficiency, and population health management. Since 2014, Michigan Medicine has earned roughly \$13 million in P4P incentives for HIE-related work.

Programs like CKS and P4P rely on HIEs, which enable healthcare providers to appropriately access and securely share patients’ vital medical information electronically. Michigan Medicine’s participation in these programs directly supports its clinical strategy to secure access to 3.5 million lives statewide.

“Michigan Medicine providers see many patients who do not get their primary care here. The infrastructure we are building enables us to securely obtain data on patients who receive care outside of our enterprise, which we can then leverage in many meaningful ways,” Hepner said. “Through this work, we are enhancing patient care and safety by sending, receiving, and consuming clinical data in the most efficient and cost-effective manner.”



13

MILLION

Number of messages
Michigan Medicine exchanges
through HIEs each month

“

Reliable health information exchange has become critical for providing the high-quality care we are accustomed to providing at Michigan Medicine.

Ranjit Aiyagari

”



95,000 Connected Devices Inventoried to Safeguard Data

Many of us enter secure buildings every day. Whether at work or in a residential property, using identification cards, keyless entry, and security desks are quite common. However, few people ever think about all the data housed in a building—or how it is protected.

“In the same way that you lock the door to protect your belongings when leaving your home or office, we need to limit entry to the Michigan Medicine network to protect our sensitive information and infrastructure,” said Nathan Haley, network architect, HITS Enterprise Infrastructure. “That level of network protection requires a coordinated list of what devices are connected, why they are connected, and who owns them.”

Developing an enterprisewide inventory of connected devices has been no small feat. The number of devices connecting to the Michigan Medicine network has exploded over the past few years—more than 130,000 devices connect daily.

“In a world where data is moving constantly, it’s important to operationalize, standardize, and control how Michigan Medicine is sharing information, both internally and externally, to the greatest extent possible,” said Jeanne Strickland, chief compliance officer for Michigan Medicine.

Nearly 450 staff came together to inventory 95,000 devices across Michigan Medicine. Each device was identified and categorized by dedicated service provider. The cross-team effort required unique technology deployment, careful review, and in some cases, architecture changes to ensure devices had the necessary security protocols in place.

The project also established a common device-governance model and coordinated service providers across Michigan Medicine.

“Our distributed IT staff who work in areas where devices were not being inventoried or managed centrally no longer have to be a lone voice,” Strickland said. “As part of the inventoried network, they now have

clear guidance on what is expected from them, and they have the support of a central IT function to get what they need to ensure their areas follow the standards.”

Strickland said a comprehensive inventory is necessary under HIPAA regulations. It also provides the foundation for the next phase of the project: data mapping and application inventory.

“Kudos to HITS for prioritizing such an important matter and for moving it as expeditiously as possible to reduce risk to our patients and workforce,” Strickland said. “This project managed to find a way to get everyone moving together. Lessons and approaches from this project can be reused for other cross-enterprise IT efforts.”

“In a world where data is moving constantly, it’s important to operationalize, standardize, and control how Michigan Medicine is sharing information, both internally and externally, to the greatest extent possible.”

Jeanne Strickland

Go Phish!



Michigan Medicine Debuts Campaign to Educate Workforce About Cyberattacks

Cybersecurity threats continue to grow in number and sophistication. The most common sources of intrusion are phishing attacks: fake emails appearing to come from legitimate sources like an employer or a colleague.

"Phishing scams often ask for sensitive data, like a password or account number. Some have an innocuous-looking link or attachment that, when opened, gives hackers access to information on your computer," said Jack Kufahl, Michigan Medicine chief information security officer. "The consequences of falling for a phish are often difficult for victims to recognize. Scammers scrape information from an infected computer and disseminate it elsewhere, which can sometimes result in identity theft months later."

HITS takes steps to detect these attacks before they ever reach an employee's inbox by blocking more than three million

suspicious email messages every week; however, HITS algorithms can't catch all of them.

"Improving the knowledge and behaviors of our workforce when confronting phishing attempts against our institution are some of the most important activities we can promote to improve our cybersecurity posture," Kufahl said. "It helps protect the systems, data, and identities of Michigan Medicine and its patients, students, and employees."

Information Assurance: Michigan Medicine (IA:MM) and HITS staff are conducting a phased, antiphishing educational awareness campaign throughout all of Michigan Medicine. Initially launched within Family Medicine and Pathology, the program aims to teach employees how to recognize and report suspicious emails.

"In a busy clinic, there is so much information that our faculty need to constantly

triage and respond to. They don't have much time to closely inspect their emails. A few have actually been victims of phishing scams," said Devon Kinney, project manager with Family Medicine. "The anti-phishing awareness campaign was a great way to educate our department on how to identify a phish and what to do in response. It also gave our leadership insight into the areas where we may be more susceptible to phishing."

Participants received numerous informational communications before and after IA:MM distributed simulated phishing emails during the campaign. Over a period of three months, three simulated phishing emails were sent. As many as 12 percent of participants clicked malicious links in the messages; they were directed to websites where suspicious language and illegitimate links were highlighted and annotated to help them learn how to spot warning signs.

87%

Participants in the HITS simulated phish campaign who said they could better identify and explain phishing as a result.

"I consider myself to be a fairly tech-savvy person, and even I clicked a malicious link in the simulated phish," said Kinney. "I opened the email on my phone, so I didn't scan it as vigorously as I normally would. I was embarrassed, but it was great to see the educational materials provided."

The simulated phishing campaign is meant to help educate without being punitive.

"Our goal is to present employees with a teachable moment. Although the test emails are not malicious, *real* phishing attacks are a persistent threat," Kufahl said. "This campaign empowers the Michigan Medicine community to protect itself and challenges our workforce to become more aware of the kinds of emails used by cybercriminals."



IT Investments Create Operational Savings

Michigan Medicine’s success is rooted in our mission balance and shared economic framework. As the institution’s largest shared-service provider, HITS is committed to identifying new cost savings, controlling spending, and addressing regulatory compliance challenges, all while making strategic technology investments. The technology HITS delivers drives efficiency and, ultimately, has a direct economic benefit on the institution at large. Below are some notable examples.

HONOR ROLL

Epic, the software company behind MiChart, recently awarded Michigan Medicine with Magna Cum Laude status in its Honor Roll Program. This program recognizes organizations for achieving continuous improvements in patient outcomes, quality of care, workflow efficiency, and financial performance. Epic awarded Michigan Medicine a credit worth **\$440,000** for demonstrating a strong commitment to patient safety and health IT. Completing the Honor Roll Program also ensures Michigan Medicine continues to draw high value from its electronic health record.

MEANINGFUL USE

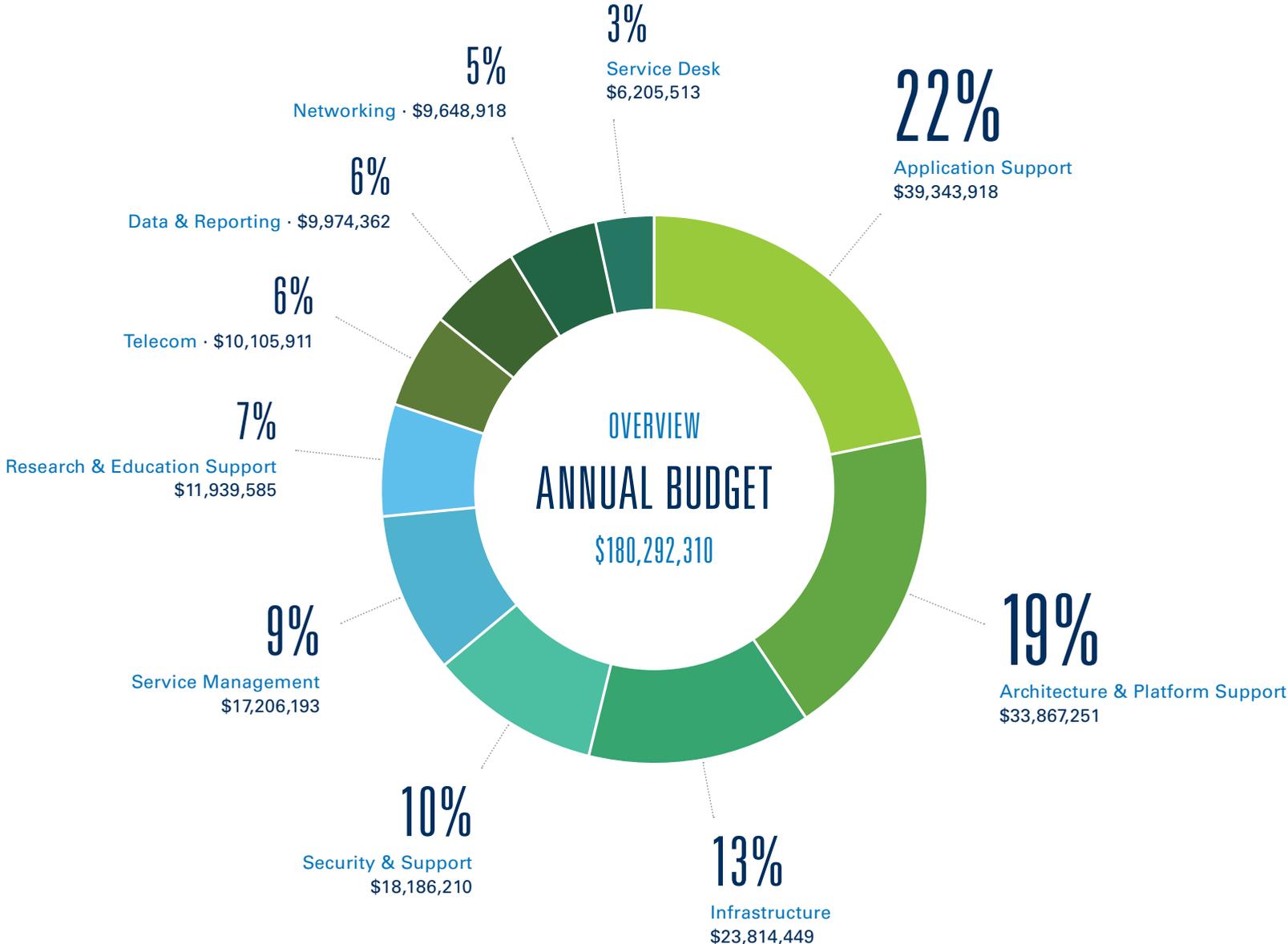
A compelling factor in Michigan Medicine’s adoption of MiChart was the Medicare and Medicaid EHR Incentive Programs, referred to as “meaningful use.” In 2017, Michigan Medicine received **\$8.4 million** in meaningful use incentives (bringing the total to **\$65 million** received since 2011) and avoided **\$9.4 million** in penalties. Satisfying meaningful use requirements benefits both patients and providers through greater portability of health and insurance records and the ability to more easily adhere to regulatory compliance while ensuring optimal revenue.

COMMON KEY

Michigan Medicine will receive **\$2.5 million** for completing a statewide incentive program called Common Key Service (CKS) to improve patient safety, enhance data integrity, and reduce workflow. Health information exchange (HIE) works in conjunction with CKS to make it possible to reliably match patients with their electronic health data across multiple health-care settings in the state of Michigan. Since 2014, Michigan Medicine has earned roughly **\$13 million** in incentives for HIE-related work. (See page 24 for the full story.)

STRATEGIC SAVINGS

HITS consistently seeks opportunities to reduce the cost of licensing and application contracts while providing maximum value to U-M. For example, HITS recently partnered with Procurement Services to successfully initiate a new strategic relationship with Cisco, thereby paving the way for a three-year savings opportunity in excess of **\$1 million**. This renegotiation also accelerates Michigan Medicine’s ability to adopt a VoIP telephone system for making calls over the network rather than relying on traditional analog phone systems—further decreasing costs and increasing convenience.



DIVERSITY, EQUITY, AND INCLUSION

MILESTONES

In developing a diverse workforce, HITS can draw upon a broad range of experiences to better serve our customers. The HITS Diversity, Equity & Inclusion (DEI) Committee provides direction and guidance to HITS leadership as they enact vital strategies related to climate, DEI skill building, conflict resolution, recruitment, hiring, and career advancement. DEI can positively or negatively affect many aspects of the workplace, including self-esteem, a sense of safety and belonging, work team efficiency, and more.



300+
HITS staff have attended
Unconscious Bias
training

HACKS WITH FRIENDS

At this year's event, members of the HITS DEI Committee led a team of staff from HITS; Information Technology & Services (ITS); the Ross School of Business; the College of Literature, Science & the Arts; and Climate and Space Sciences and Engineering (CLaSP) as they created a Tableau data visualization of Bias Incidents at the university. The team produced a fully functional dashboard, which required redesigning the Bias Incident data model and associated intake form.

COMMUNITY OUTREACH

HITS DEI Committee members have participated in various forms of community outreach, including organizing outings to Food Gatherers, participating in educational outreach with the Wolverine Express school visitation program, joining in the Gamers for Giving charity event, and mentoring high school students through Wolverine Pathways and Software Carpentry.

UNCONSCIOUS BIAS COURSE

Supervisors and hiring teams are now required to attend the *Unconscious Bias in Everyday Life* course, which examines how unconscious bias can affect one's perceptions, decisions, and interactions. All other Michigan Medicine employees are encouraged to attend this course. Participants learn how bias and the unconscious mind can impact decisions and how to develop strategies for hiring and building a diverse and inclusive team.

COMING SOON WHAT TO WATCH FOR IN FY19

HITS PARTNERING WITH AMBULATORY CARE SERVICES TO LAUNCH NEW WEBSITE

Similar to fashion and home decor, websites can look and feel outdated very quickly. HITS is helping departments across Michigan Medicine rethink their web presence through analytics, improved visual design, stakeholder interviews, and analytics.

Recently, new websites were created for Human Resources, U-M Medical School, and Trauma Burn Center. Now, HITS is changing focus to the Ambulatory Care Services (ACS) website, which hosts operational, financial, and clinical information for employees in Michigan Medicine's 150+ outpatient clinics. User research shows ACS website visitors are seeking better search capability, improved navigation, and an updated look. HITS will create the custom website using Drupal, a content management platform that makes it easy for departments to maintain and update their own content. HITS maintains the necessary technical aspects so websites do not experience downtime or security issues.

Through the development and use of technology in fiscal year 2019, HITS will continue to enrich the Michigan Medicine experience for our faculty, researchers, staff, and medical students. As we reflect on and celebrate several accomplishments from the past fiscal year, we also look forward to some of the exciting things HITS will deliver next year.

HOME FOR DINNER: HELPING PROVIDERS USE MICHART MORE EFFICIENTLY

Provider burnout is known to be a significant issue across the medical community. While electronic health records can enhance coordination and quality of care, they can also have unintended negative consequences. U-M providers are spending significant time catching up on data entry during off-hours, which contributes to record levels of burnout.

To help clinicians discover more effective ways to use MiChart, HITS will introduce a new course called Home for Dinner. The course trains clinicians on ways to streamline their efforts and maximize MiChart features like customized workspaces, clinical review, In Basket, and notes. All of the U-M providers who piloted the two-day course reported improved satisfaction with MiChart and said they would recommend the class to colleagues.

"Home for Dinner training is a huge help. It increases efficiency and cuts down time to document," said John Allen, M.D., professor of internal medicine.

AIDING MEDICAL STUDENTS IN GOAL PLANNING AND INDIVIDUAL DEVELOPMENT

HITS recently developed ARB (Assess-Reflect-Build), a suite of tools for supporting the portfolio undergraduate medical students build as they complete the Medical School's new curriculum. A key component of ARB is the Individual Development Plan (IDP) students use to reflect on their experience; set goals; and work with their assigned coach, branch advisor, or other mentor to shape their professional development trajectory.

HITS is partnering with the Medical School to streamline the IDP documentation process, making it easier to manage permissions, improve consistency across programs, and decrease duplication of effort. Using IDP, students will be able to create, categorize, and maintain goals, action items, and meeting notes. They will also be able to draw from existing Learning Outcomes data.

MICHART TO BE UPGRADED IN OCTOBER 2018

As part of a commitment to staying current and improving efficiency, new features, automatic updates, and application maintenance will be completed this October on Michigan Medicine's electronic health record, MiChart. HITS also plans to incorporate changes to reduce MiChart downtime duration in preparation for more frequent upgrades in the future.

The latest version of MiChart will include some significant changes, including improved Release of Patient Information workflows for Health Information Management (HIM) and Radiology, a "Nursing Hub" for better shift planning and documentation efficiency, discrete patient goal documentation for Home Health clinicians, and enhanced support for preferred name and gender identity for patients within MiChart and the MyUofMHealth.org patient portal.





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