ANNUAL REPORT
2019

Weill Cornell Medicine
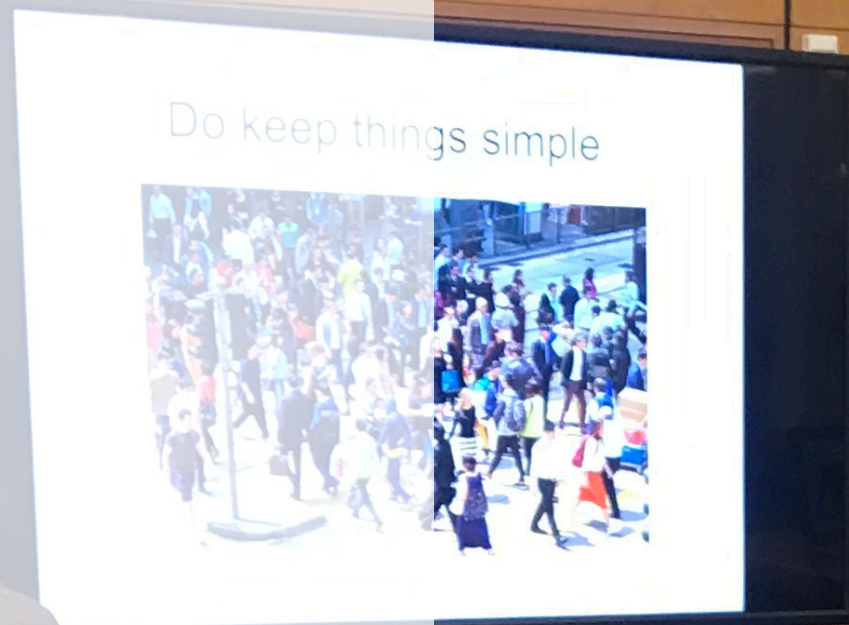
ITS

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Photo Credits

Cover art: Our cover was created by two of our staff, Rengarajan Sridharan and Praveen Prasad. The piece, aside from showing our institutional colors, represents unity in diversity within ITS and the college.

Right: Sherisse Brown hosts a Tech Tuesday session on PowerPoint tips.

Message from
our CIO

Trying to keep ahead of the latest technology trends can prove to be challenging. How does ITS ensure the college is on the cutting edge?

We live in a world of buzzwords, particularly in information technology. Some are business trends that come and go (remember re-engineering?) while others are real trends worthy of attention (alas, the cloud will not just blow away). The trick is determining which trends are fast enough to keep up and avoid irrelevance.

As lovers of technology, my colleagues and I in ITS always have an eye out for the shiny new object. We all owe a debt to early adopters who work out the kinks and make everything we use better. Adopting early means suffering bugs, inconsistencies, and, too often, a failed product.

So how do we decide what technologies to bring to WCM? If we adopt too early, we waste time and money. If we adopt too late, we may never catch up. Our rule of thumb is that we try to lead in areas that are differentiating for the college and follow in areas that are not. Even in the commodity area, we try to take them to their full potential and to pick a few shiny objects now and again to keep things interesting.

WCM was an early adopter of Epic and we've used that for competitive advantage. We were able to define some of the best features for our providers and patients. Early adoption also enabled faster clinical research innovations like ARCH, and delivered a better patient experience with our WCM app and Weill Cornell Connect. In 2020, our physicians and patients will have a unified Epic experience as we help NYP and Columbia go live.

We were relatively late adopters of OASIS, an education evaluation tool which gave us a boost during our LCME evaluation. With OASIS, we adopted procedures that worked well at peer institutions that preceded us. This year, we also finally got rid of bubble sheets; quizzes have gone digital with Examplify.

We waited too long to mandate conversion to Windows 10. Microsoft released Windows 10 in 2015 and will stop supporting older versions in January of 2020. There is a server-side upgrade as well that will require dozens of applications to either upgrade or retire. The conversion would be disruptive no matter when we did it, but waiting too long has created unwanted urgency.

We were also [probably too] late to adopt InfoEd, the core system behind Weill Research Gateway. This allowed us to install multiple modules simultaneously to deliver a far more integrated version than most peer institutions. We quickly became leaders in that community by building tools like the SASP dashboard, which gives faculty a status of all the different components of their applications. This feature is not native to InfoEd, nor our former system.

Until recently, we have been early adopters of many SAP tools so we could offer service improvements to our users as quickly as possible. A major new version of SAP is now available that we are waiting to adopt because support for the kind of accounting we do here is still immature. But we are staying cutting edge with Power BI, the market's leading data visualization tool.

Our in-house developers continue to push the envelope in areas where vendors don't. They built a highly resilient, self-healing, cloud-based Directory that recovers so quickly, we can literally turn it off in the middle of the day users won't notice the delay. Our ReCiter system for author disambiguation provides our faculty with more current profile pages than any competing institution with less effort since the system is 99% accurate. Our Online Research Binder (ORB) program cuts the costs of clinical trials by allowing sponsors to monitor remotely rather than travel to New York just to review paper forms.

The big choices we face now include migration to the cloud, support for rapidly proliferating networked devices (aka Internet of Things), expanded GPU support for research, virtual reality, predictive analytics, unified communications tools, software defined networking, and more. The current buzzwords like AI, Blockchain, Digital Transformation, or Disruption will have varying degrees of impact and staying power.

Our emphasis remains optimizing the transactions of the college so our students, faculty, and staff can focus on the mission. We will look at all these innovations and try to take the best ideas from each. The core metric will remain value to our customers, colleagues, and collaborators to ensure everyone gets "The Right Information at the Right Time."

Curtis L. Cole, MD, FACP
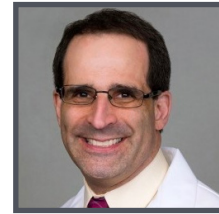*Chief Information Officer*

Senior **Leadership**

Curtis Cole
CIO

Vipin Kamath
Deputy CIO

Mark Weiner
Deputy CIO

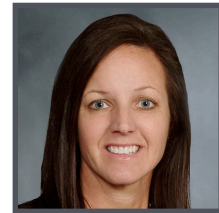**Daniel Splitgerber**
Department Administrator

Thomas Campion
Director, Research Informatics

Harish Chava
Director, Administrative Computing
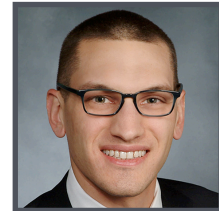
Douglas Cohen
Director, Education Computing

Paula Herber
Director, Service Delivery

Hanif Khalak
Director, Research Computing

Tanisha Raiford
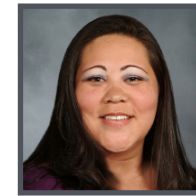*Privacy Officer*

Brian Tschinkel
Chief Information Security Officer

Vinay Varughese
Sr. Technology Officer

Terrie Wheeler
Director, Library

Associate Directors

Vanessa Blau
Research Administration

Eugene Chen
Network & Communication

Diana Delgado
Library User Support, Research & Education

Dan Dickinson
Experience Office

Richard Hu
Service Strategy & Systems Architecture

Peter Oxley
Library Research
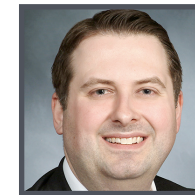
Kyle Pelletier
Software Development

John Ruffing
Advanced Technology Integration

Ramon Segarra
Server Management

Brian Uriarte
Digital Engagement Services

Assistant Directors

Victor Farrell
Project Management

Meghana Futnani
Business Intelligence

Bill Leahy
Client Services

Mohammad Mansour
Application Development

John Young
Communication & Event Services

FY19
Score Card

EVERY YEAR, WE LAY OUT A SERIES OF GOALS FOR THE COMING YEAR. THIS SECTION REVIEWS HOW WELL WE DID AGAINST THESE GOALS, AND THEN WE UPDATE THEM FOR THE COMING FISCAL YEAR. A ✓ MEANS THE GOAL WAS COMPLETED, A ± MEANS IT WAS PARTIALLY COMPLETED, AND A ⊗ MEANS IT WAS NOT COMPLETED IN FY19.

Enhance services for clinical staff & patients

✓ Migrated EpicCare to Epic hosting in Wisconsin, which was highly complex, but was completed smoothly without significant user impact.

✓ Completed transition to the EpicTogether management model shared with Columbia and NYP staff; now functions as an integrated unit.

✓ Improved patient access by supporting self-scheduling, pre-visit data collection, and electronic check-in functions; thousands of patients now scheduling visits on Weill Cornell Connect.

✓ Launched new Cancer Librarian service for the Patient Resource Center, which saw 473 customers in its first year.

± Did not formally launch planned clinical IT innovations program, but were able to complete pilot run with Airbud, a Cornell Tech business that voice enabled weillcornell.org.

⊗ Made modest progress on project to Improve interoperability with commercial payer partners to better support pay for performance programs, but have had productive discussions with vendors regarding improved revenue analytics and credentialing.

Enrich student learning & support teaching

✓ Successfully Implemented Poll Everywhere for real-time classroom feedback. Total usage includes 166 users, 3,357 polls, and 45,628 poll results.

✓ Implemented ExamSoft for online quizzing; usage includes 20 assessments and 2,194 questions using multiple question types.

✓ Enhanced self-service reporting and improved data accuracy in LEARN by cleaning core data and implementing new Izenda self-service reporting system.

✓ Expanded OASIS curriculum management system for course, faculty, and student evaluations, lotteries, and curricular mapping.

✓ Piloted WCM Here! app for automated attendance tracking system for Continuing Medical Education (CME).

± Unable to Implement new alumni tracking and engagement system yet, but aggregated and cleaned multiple different alumni data sources in preparation for new module deferred to FY20 due to funding constraints.

Support scientific innovation & research

✓ Expanded ARCH data service to include inpatient and outpatient EHR data from Brooklyn Methodist and NYP Queens hospitals.

✓ Upgraded library's Data Core Service with easier user access, improved onboarding of non-WCM users, provisioning of a data catalog, and faster turnaround times, with more planned for FY20.

✓ Enabled research queries of WCM i2b2 data at other Clinical and Translational Science Awards (CTSA) institutions; NCATS-ACT went live and received a $75,000 grant for startup and a $25,000 grant for ongoing activities.

✓ Supported expansion of NIH *All of Us* Research Program; program has recruited 100+ patients at Brooklyn Methodist and 6,200 elsewhere at WCM. A paper describing informatics to support AoU was presented at the AMIA Informatics Summit meeting.

✓ Expanded lab website services to over 15 labs to provide new solutions for representing research core.

✓ Deployed automated tools to more quickly and accurately identify student and faculty publications with ReCiter, which we now use for reporting and providing data to departments and other information systems.

⊗ Unable to launch Clinical Bioinformatics program; still looking to recruit right person.

Streamline workflows for research administration

✓ Enabled easier submission and transparent tracking of IRB, Radiation Safety, and Institutional Biosafety with five new WRG modules.

✓ Replaced clinical trials management system with new OnCore system for more efficient process and complete workflows.

✓ Enabled OpenSpecimen biorepository for biospecimen inventory tracking and requests.

✓ Launched Online Research Binder (ORB) system to replace paper-based research binders; went live for 155 studies and 144 users.

Enable efficient & effective administrative operations

✓ Deployed new Academic Staff Management System to replace aging WOFA, enabling departments and faculty to better manage faculty data.

✓ Expanded rollout of budget development module to include enhanced reporting.

✓ Deployed new lease management system ProLease to capture and manage equipment leases.

✓ Deployed Microsoft Power BI as our new self-service data visualization and reporting tool; a team of engaged stakeholders evaluated multiple systems and selected Power BI as the best option for the institution.

✓ Deployed a new, simplified electronic journal voucher (JV) form to simplify and speed workflow.

± Some progress made on enhancing space management system to track and optimize lab space utilization and expenses, but completion of this module awaits completion of institutional categorization of lab space.

± Some progress made on expanding rollout of eTime electronic time attendance system at WCM; Qatar sites started eTime implementation, but go-live will not be until FY20.

⊗ Unable to deploy new Environmental Health & Safety inventory and tracking system to allow better management of lab incidents and compliance audits; this project was deferred to FY20.

Advance IT capabilities through customer-centric service

✓ Adopted best practices from the IT Service Management field (ITIL) to enhance IT support services to be more efficient and transparent; 100% of ITS staff were retrained and 3 major new workflows implemented around incidents, problems, and requests, dramatically reducing service backlog and improving responsiveness. Additionally, a new practice definition for Agile projects was created, and all ITS project managers were retrained, 2/3 of whom now are Agile certified.

✓ Upgraded the myHelpdesk website to expedite and simplify service with a new chat option, self-service knowledgebase, and provide more direct access to the experts users need.

✓ Improved internal training program to deepen skills and drive more consistent service delivery; all ITS employees received customer service training from the Ritz-Carlton and ITIL process training. Managers underwent new universal training program. Call support teams also received dedicated MacOS, Advanced Office, and Outlook training.

✓ ITS staff can now flag tickets that should have been resolved on first contact to expedite training.

± Implemented some revisions to our user satisfaction survey to better gather feedback on ITS services, but additional improvements are needed to increase response rates and add a Net Promoter Score.
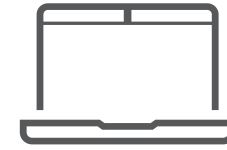
Create & enhance technology solutions & services

✓ Deployed Amazon Web Services (AWS) as a secured self-service cloud offering available to faculty, staff, and students; ITS now has 15 AWS-certified staff supporting cloud services and is beginning to support Azure and Google Cloud as well.

± Some progress was made to enable access to campus phone services remotely through desktop and mobile software. Tests of Avaya softphones and Microsoft Teams were tested, but are not yet ready for widespread deployment.

± Unable to launch Microsoft Teams in FY19 as our newest self-service team chat and group file sharing tool, but ITS was able to successfully pilot it and select Teams as our enterprise solution for FY20.

± Began work on remediating websites and applications to be compliant with accessibility standards, providing people with disabilities better access to informational resources. We deployed SiteImprove to evaluate accessibility gaps and launched a multi-year program to remediate these gaps.

⊗ Postponed improvements to call quality monitoring in clinical practices and service desks by enabling new call recording features; this is pending an upgrade to our Avaya phone system.

Protect institutional infrastructure & data

✓ Implemented BigFix to protect systems from loss and monitor patching; compliance has improved from only 1/3 of machines to over 90%.

✓ Enhanced disaster recovery and business continuity procedures by meeting our testing goal for 99% of planned systems, our highest percentage ever.

✓ Improved seamless access to online applications at partner institutions by improving password compliance and expanding federated access for WRG to NYP and Qatar.

✓ Improved secure large file transfer service by allowing users to send files up to 35GB (from 10); service can also support up to 100G on request and is twice as fast.

⊗ Unable to expand device encryption program to protect older and non-standard devices; we have purchased new software, but are still testing it.

FY20
Goals

Each year, ITS works with stakeholders to set the major priorities for the department and ensures each division is working towards accomplishing these goals for the fiscal year.

Enhance services for clinical staff and patients

- Support Columbia and NYP EpicTogether go-live.
- Create new tri-institutional Epic post-live application support model.
- Implement voice-driven patient chat for *Find a Physician* and appointment scheduling on weillcornell.org.
- Roll out Epic Rover app for mobile users.
- Expand functionality on WCM Mobile App, including better *Find a Physician*, MD and Practice Profiles, and Guest Bill Pay.
- Implement a new POPS editor to improve the mobile experience.
- Develop a new back-end for weillcornell.org to improve patient experience.
- Expand and upgrade current telehealth program with new technology for video visits.

Enrich student learning and support teaching

- Implement new systems, such as Jenzabar reporting module, WCM Here! attendance system, new Alumni system, automation for the CME office and Financial Aid, and AAMC WebAdmit.
- Provide new services for students, such as Teams, OneDrive, and VIVO pages.
- Redesign curricular services such as the Functional Neuroanatomy (FNA) online resource and the graduate student lab rotation forms.
- Transition to a unified support experience for students and faculty.
- Develop plan to support virtual and augmented Reality tools.
- Expand existing services, such as Canvas, Poll Everywhere, OASIS, Qualtrics, Panopto, and Examplify.

Create and enhance technology solutions and services

- Deploy Teams collaboration suite to pilot users and students, and develop full institutional rollout plan.
- Roll out Power BI data visualization across WCM.
- Upgrade auto-syncing cloud-based storage options (BoxDrive and OneDrive) with improved security.
- Develop cloud conversion plan for the majority of remaining on-premise ITS systems.
- Double the number of cloud-certified staff.
- Convert all major websites to Drupal 8 with a new search engine to improve accessibility and mobile experience across .org and .edu sites.
- Create a PC and Mac parity program to normalize support and policies across platforms.
- Explore potential support for an additional Linux desktop with SCU.

Streamline workflows for the administration of research

- Launch Phase 2 of the WRG/OnCore clinical trials system with financial tools and Epic integration.
- Update WRG Human Subjects module with new questionnaires to support change to the Common Rule.
- Design WRG Proposal Tracking workflows and dashboards for departmental grant administrators.
- Update WRG Conflicts Module to meet expanding regulatory requirements.
- Expand the number of laboratories supported by the Open Specimen/Core Laboratories Center Biorepository.
- Evaluate options for institutional lab notebook, research data retention service, and image manipulation detection software.
- Add support for Subject Binders to Online Research Binder (ORB) system.

Protect institutional infrastructure and data

- Implement a laptop and phone loaner program to protect visitors to China and other high-risk countries.
- Create a road map to password-less logins within two years.
- Facilitate easier access to the campus network with improved federation, unified sign-on, AnyConnect VPN rollout, and network access control.
- Enhance attack detection from outside and within our network, vulnerability management, scanning of departmental and cloud-based systems, and automated alert response.
- Exploit high-quality identity data and risk profiles to simplify user experiences, such as improved single sign-on, badge-based services, faster onboarding, and easier software provisioning.
- Eliminate old, unsupported operating systems and deploy improved monitoring to keep systems and software up to date.
- Re-evaluate security software stack for potential vendor consolidation and service expansion.

Advance IT capabilities through customer-centric service management

- Implement Service Dashboards for Department Administrator to track ITS service levels.
- Offer 1:1 IT consultations to 100% of new faculty and 50% of existing faculty.
- Add online and mobile scheduling options for SMARTDesk.
- Streamline communication to the ITS user community, including better audience targeting, more education tools, improved satisfaction metrics, and enhancement requests.
- Update device management systems to improve application updates, distribution, self service, configuration tracking, and security monitoring
- Double the number of standard request types on myHelpdesk and triple the number of knowledgebase articles
- Implement Service Portfolio Management through the PMO.
- Convert internal customized case management system (ServiceNow) to standard new release.
- Train all ITS staff in unconscious bias awareness.

Support scientific innovation and research

- Launch unified Cybercommons with Ithaca and Qatar for improved access to GPU and CPU clusters, tiered storage, cloud provisioning, and a data catalog.
- Release DataCore 2.0 with a new data catalog, expanded software services, and multiple shared data sets including NY Medicaid and ARCH RDRs.
- Expanded ARCH services such as large-scale de-identified EHR data resources, enhanced REDCap integration with Epic and CFR 21 Part 11 compliance, multiple new RDRs, and extensive new data content including genomic variants of unknown significance (VUS).
- Develop roadmap for Real World Evidence support at WCM.
- Provide faculty access to ReCiter publication management and de-duplication tool.
- Expand grant editing service to include multi-institutional grants.
- Develop boilerplate for grants regarding institutional IT and library services with OSRA.
- Double the number of lab sites on the standard Drupal distribution.

Enable efficient and effective administrative operations

- Launch integrated annual training with road map to unify across WCM and create reciprocity with NYP.
- Update Academic Staff Management System cloud architecture to integrate Faculty Review, add postdoc tracking, and support Centers and Institutes.
- Complete selection of new purchasing system to replace SciQuest.
- Convert legacy SharePoint sites to O365.
- Expand eTime to other departments.
- Complete enhancements for Space and Lease Management, EHS Shipping, and EHR/HR ServiceNow implementations.
- Complete Journal Voucher eForm and Direct Deposit rollouts.
- Implement Budget Module for Qatar.

New Tools
& Services

Every year, ITS evaluates multiple new solutions to help faculty, staff, and students.

One of the most significant new services we've launched in years is our latest collaboration tool, Microsoft Teams. Teams offers a marked improvement over our current solution, Skype for Business, by adding features like persistent chat rooms, group file storage – and ultimately phones. Teams also syncs with Office 365, meaning details like your availability (based on your Outlook calendar) are visible so people know when they can contact you.

We also completely revamped our ordering workflow for Windows computers, offering the new Dell Smart Select service. Instead of working through a third party, staff can order directly through Dell in the Weill Business Gateway, and customize options. Several standard configurations offer faster shipping. Additionally, staff can take advantage of lower prices by ordering directly through Dell.

Our smartphone app services are expanding as well. This year, we launched WCM Here!, which automates attendance tracking and slide distribution using smartphones. Attendees can download the app and check into an event, giving organizers the chance to see who attended. Organizers can also push important data, like slide decks, PDFs or questionnaires, to attendees via the app.

Over the next fiscal year, ITS will focus on improvements to our audiovisual services, digital signage around campus, and other initiatives to keep us more efficient and better informed.
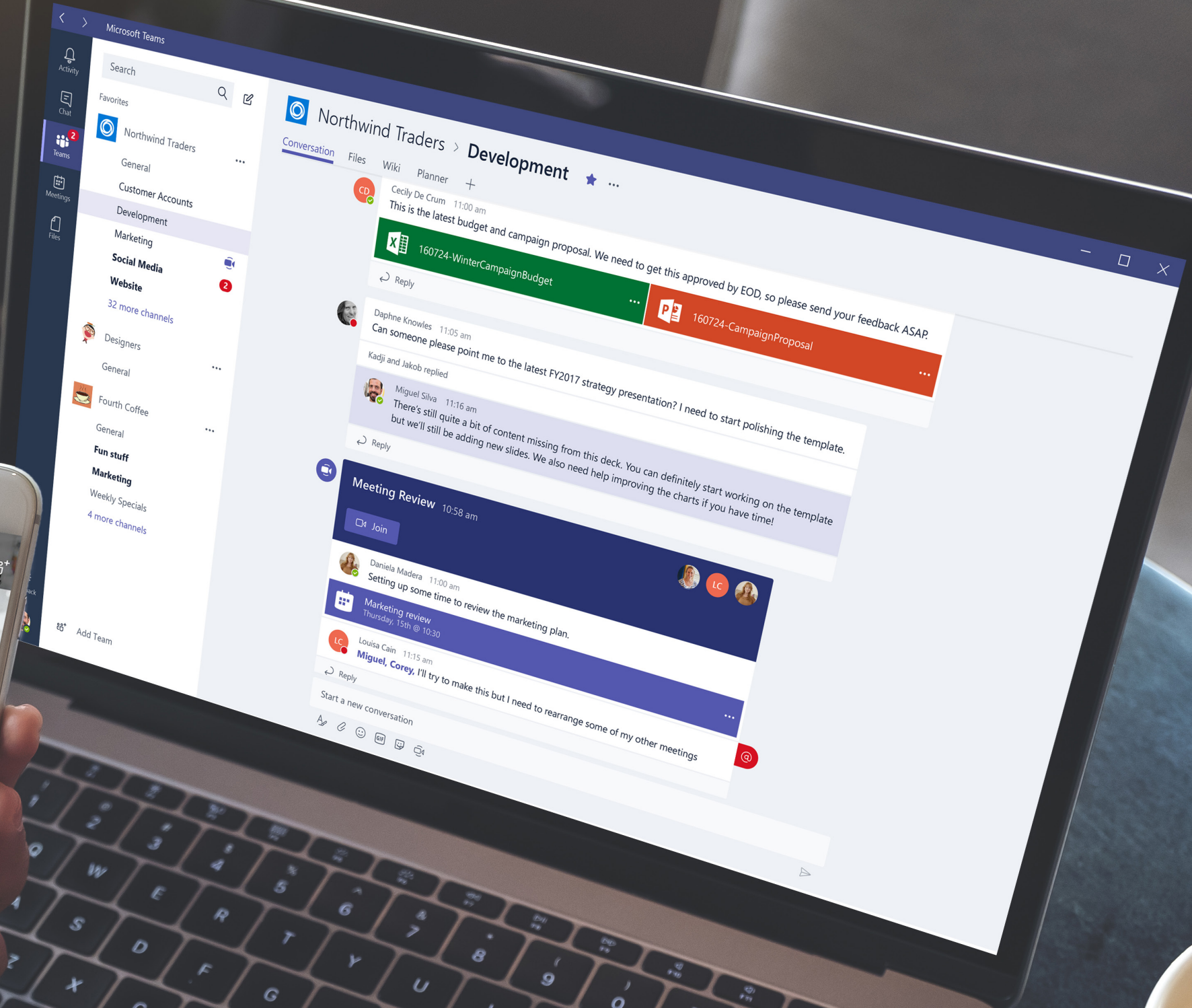
Microsoft Teams

Microsoft Teams makes online communication with colleagues a breeze. With Teams, you can:

- Create teams, or groups, for specific projects and topics, and manage participants.
- Upload files that anyone in a group can view
- Start simple screenshares with others
- Start an online phone call with one or more colleagues
- Take conversations with you on the go using the Teams mobile app

Microsoft Power BI

ITS launched Microsoft Power BI, a sophisticated visualization and analytics tool that helps users see the trends and stories behind large and complex data sets. Currently, the tool is available at no cost, but ITS will offer an enterprise license in the future that will include features like collaboration, secure publishing, and connectivity to internal databases, such as the Weill Business Gateway.

Other Key Accomplishments

- Implemented ProLease, a new system to track all equipment and real estate leases across the institution to meet the new Financial Accounting Standards Board (FASB) regulations.

- Deployed five new WCM websites on our Drupal content platform: Department of Otolaryngology, Emergency Medicine, Budget & Financial Strategy, Government & Community Affairs, and the student-run Wellness Qlinic.

Upcoming Projects for FY20

- Test ZoomRoom, TeamsRoom, and other solutions to simplify the AV experience in conference rooms.

- Enhance and deploy a comprehensive donor engagement suite of tools that can manage all External Affairs/WCM fundraising campaigns.

- Deploy Constant Contact, an email marketing tools which provides turnkey solutions that can track and monitor email engagement for both external (patients) and internal (faculty and staff) use cases.

- Introduce a digital signage platform to reduce and eliminate poster boards and easels in lobbies, and utilize existing content from central content management systems to increase staff, faculty, and student engagement.

- Test Airbud, the AI-powered chatbot, on the ITS website as a voice enabled search assistant.

New Mobile Apps

Here are the latest apps we've released to bring care, research, and more on the go.

Maya

We partnered with the Department of Psychiatry to build Maya, a cognitive behavior therapy app focusing on assisting young adults struggling with anxiety disorders. The app guides users through a six-week program that consists of videos, exercises, and assignments.

WCM Here!

Available on both the App Store and Google Play, WCM Here! utilizes beacon technology to record attendance and send information to event attendees within a specified radius.

AI in Medicine

Our ARCH team developed a Natural Language Processing system that identified 26% more black patients, and 20% more Hispanic patients from Epic progress notes than were found using structured registration data. This will help researchers gain insight into patients who have been historically underrepresented in clinical research.

Research **Initiatives**

ITS MADE MAJOR STRIDES IN SUPPORTING INNOVATION AND RESEARCH AT WCM. PART OF THAT INCLUDES THE CONTINUED EXPANSION OF SERVICES PROVIDING RESEARCHERS MORE WAYS TO ACCESS AND PROCESS CLINICAL DATA, AND IMPROVING HOW WE GET STUDIES UP AND RUNNING.

This year, we implemented OpenSpecimen, a comprehensive database for biospecimen management that is used by major research institutions around the world. OpenSpecimen supports Institutional Biorepository Core workflows, including fluid and solid tissue collection, processing, storage, and distribution.

For patient data, we made it easier for investigators to reach out to patients by including a "Consent to be Contacted for Research" option in the Epic eCheck-In visit process. Investigators can also take advantage of national patient data now available thanks to our partnership with NCATS Accrual to Clinical Trails (ACT) Network. ACT supports investigator-initiated clinical trials by enabling our scientists to query EHR data stored in i2b2 across all 57 CTSA hubs nationwide. ITS continues to be on the forefront of novel informatics methods to support clinical research, publishing six papers this year, including one on REDCap-based eConsent.

ITS also made significant upgrades to the Weill Research Gateway (WRG), introducing new Human Subjects and Clinical Trials modules to replace our legacy eIRB, CREST, and JIRA systems. Human Subjects (WRG-HS) is now the central point to initiate all human research studies. Its advanced logic allows investigators to answer only applicable sections of the IRB application cutting down the number of questions by more than half. Likewise, Clinical Trials (WRG-CT) simplifies the subject enrollment process to provide more transparency to the research community, with features like the ePRMS Console for Protocol Review and Monitoring Committee (PRMC) assessments for scientific feasibility of research studies. While the underlying vendor software is still somewhat clunky, ITS, OSRA, and the JCTO will continue to enhance WRG over the next several years to make submissions faster and easier and to provide unified study tracking in one convenient location.

Other Key Accomplishments

- Began hosting PostDoc Office Hours to give postdocs and the research community flexible time to drop in and get personal assistance with ITS services.

- Consolidated all research admin websites into one master site to make content management and wayfinding easier for all parties.

- Introduced Reportable Events and Closure Reports to the WRG-HS module to electronically track reportable events and study closures.

- Consolidated submission and reviews of laboratory safety registrations and clinical safety applications for Environmental Health and Safety, Institutional Biosafety Committee, and Radiation Safety Committee into WRG.

- Designed and developed a Radiation Dosimetry request form in WRG to allow the research community to easily request dosimetry calculations for protocols from the Office of Health Physics and Department of Nuclear Medicine.

- Implemented a Reporting Analytics Tool, known as EVAL, to support the Meyer Cancer Center in curating grants and publications data necessary for Data Table 1 and 2 reporting to meet Cancer Center Support Grant (CCSG) guidelines.

- Built six new lab websites.

Improvements & Upgrades

- Supported enrollment of 6,000 participants in the NIH *All of Us* Research Program through consent management and EHR data transmission.

- In the first full year of our TriNetX interface, we received 74 offers to participate in new clinical trials. One half were accepted opening new options for our patients and researchers.
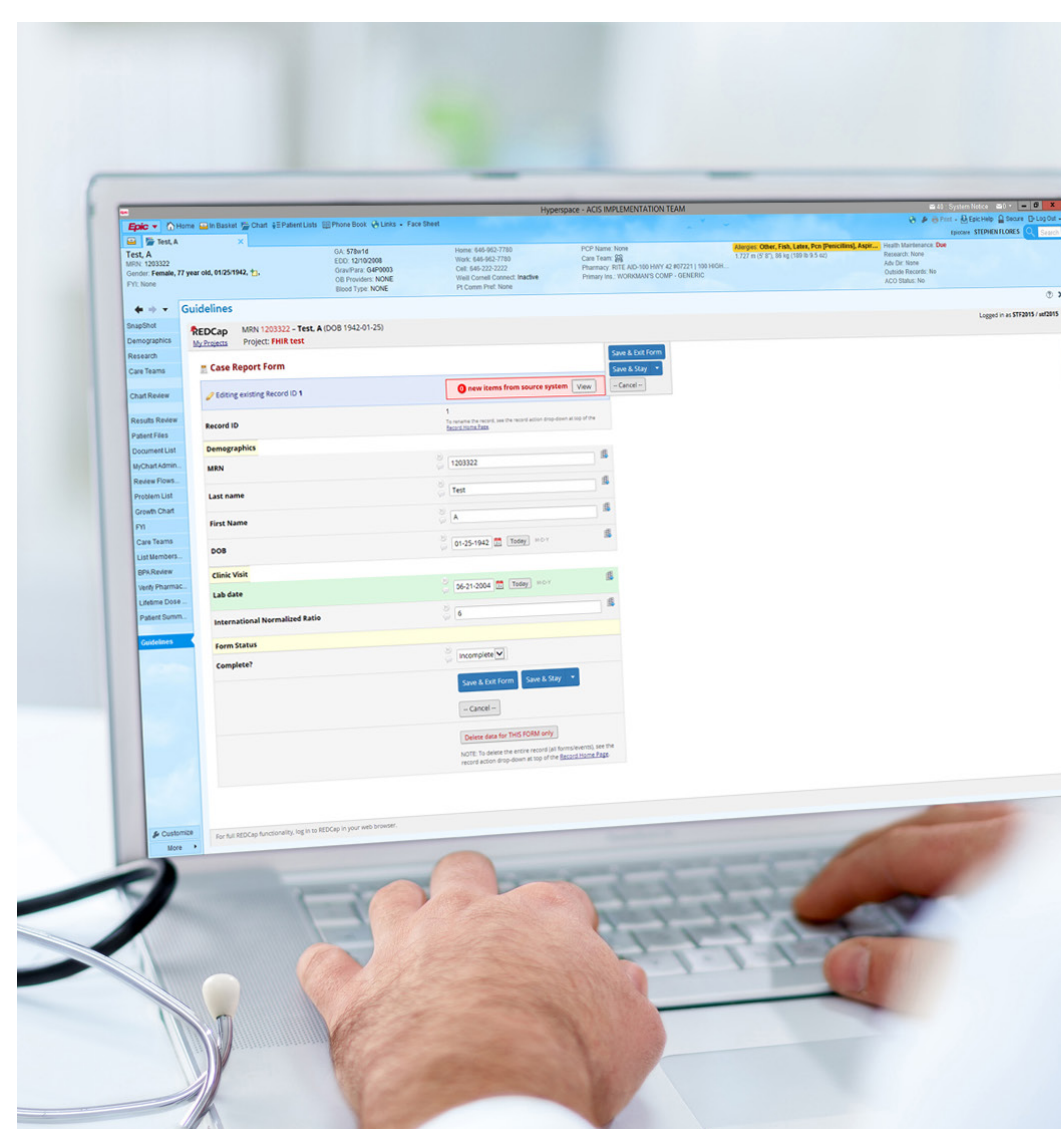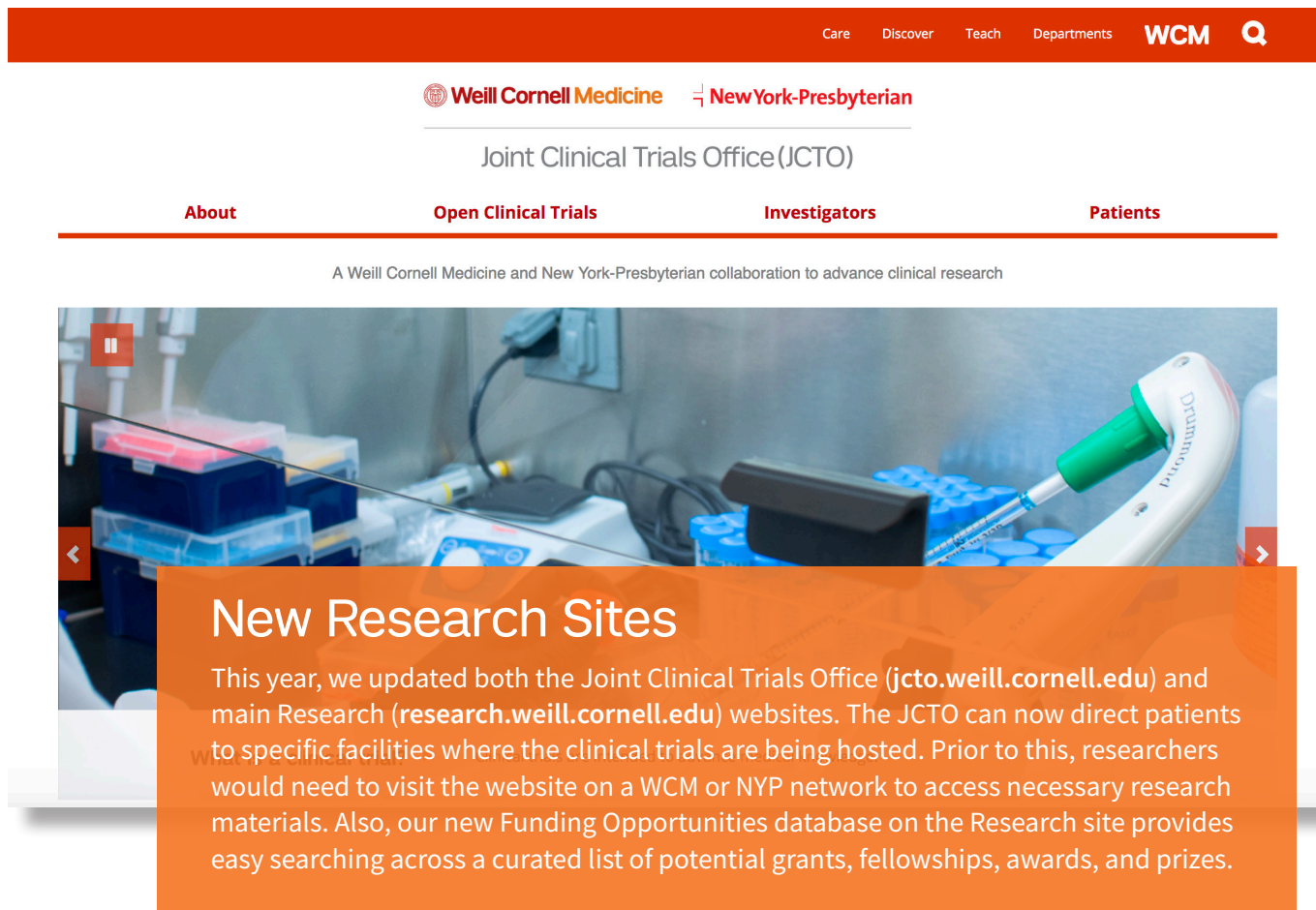
NEW SASP DASHBOARD

One of the most significant changes in WRG this year was the launch of the new ITS-developed **Study Activation Status Page (SASP)**. The SASP dashboard provides an overview of all of the relevant approvals, trainings, and documentation required before a clinical research study is active and open to subject enrollment.

SASP makes the most of underlying vendor software by integrating with all WRG modules and other external review applications to track all required tasks during a study's approval, while providing visibility into interactions with ancillary groups.

MAKING WRG WORK FOR YOU

Before any new WRG module is launched, ITS schedules extensive testing sessions with the research community to get their feedback. In December 2018, several researchers volunteered to help us test our new Clinical Trials module (pictured below). Testing sessions like this help us determine how these systems will work in a real-world setting, and allow us to hone our future enhancements.

New Research Sites

This year, we updated both the Joint Clinical Trials Office (**jcto.weill.cornell.edu**) and main Research (**research.weill.cornell.edu**) websites. The JCTO can now direct patients to specific facilities where the clinical trials are being hosted. Prior to this, researchers would need to visit the website on a WCM or NYP network to access necessary research materials. Also, our new Funding Opportunities database on the Research site provides easy searching across a curated list of potential grants, fellowships, awards, and prizes.

SUPER REDCap on FHIR

WCM became the third site in the world to implement SUPER REDCap on FHIR. Using the Fast Health Interoperability Resource (FHIR, pronounced "fire"), the tool allows you to access REDCap within Epic and automatically populate REDCap forms with data from Epic, eliminating copy-and-paste from Epic for research. Email us for more details at **arch-support@med.cornell. edu.**

- Supported 15 investigator groups with Research Data Repositories (RDRs) that provide custom data marts derived from Epic, Allscripts, and other clinical and research systems.

- Unified a multitude of Human Research Administrative Applications into Weill Research Gateway (WRG), an online portal which is easily accessible to faculty and staff at the institution.

- Enabled simplified access to the externally hosted CITI research compliance training website, using CWIDs. Training records are now interfaced to both SuccessFactors and WRG.

- Implemented modifications to the Conflicts of Interest survey and reports focusing on increased usability, accuracy, and visibility in disclosed information in WRG-COI.

- Enhanced questionnaire logic for the Institutional Biosafety Committee Registration.

- Enhanced bill processing and error resolution in iLab to support 21 cores, resulting in a 40% increase in total dollars billed compared to FY18.

Upcoming Projects for FY20

- Pilot the use of real-world data (RWD), including electronic health record data, to replicate the results of clinical trials.

- Expand research support at NYP Brooklyn and Queens through addition of EHR data to i2b2 and OMOP, as well as education sessions.

- Integrate OpenSpecimen biospecimen data with i2b2 and other ARCH applications to enable biobank-linked EHR data-driven research.

- Expand eConsent using REDCap on iPads from initial pilot studies to new trials.

- Pilot the implementation of ARCH services in cloud environment.

- Introduce electronic subject binders in the Online Research Binder (ORB) for the research team to store, manage, and track subject-level documents in a safe and PHI-compliant online environment.

- Plan the financials implementation in WRG-CT to track subject visits and accommodate calendar builds and budgeting of clinical trials.

- Introduce WRG-HS to the research community at our Qatar campus, and transition Qatar laboratory safety registrations into WRG-RS.

- Plan the implementation of WRG-HS Phase II to include Common Rule regulations, a federal policy for the protection of human subjects.

- Develop a new eForm for Post-Approval Monitoring of Human Subjects research, including Annual Check-Ins, to meet regulatory guidelines.

- Build out lab websites and continue work on the web accessibility remediation project to ensure research sites are compliant with all Cornell University accessibility policies.

- Create web analytics reports to understand how research websites are performing and understand current and prospective researcher/faculty journeys.

Clinical Initiatives

Scheduling a doctor's appointment shouldn't be painful. This year, ITS helped patients get the care they need by enhancing the digital tools and applications available to access to our vast network of WCM providers.

We delivered a modern, online scheduling interface for Find a Physician and Physician Profiles that allows patients to quickly view and select available timeslots to make an appointments. The redesign included a unified search bar that searches across physician name, conditions, and treatments with auto-suggested results. It then sorts results by availability to help patients find physicians with the earliest appointment times, and offers a geolocation zip code input to provide results for physicians in close proximity. The new layout also has improved filtering tools and mobile display support. To complement this functionality, we also redesigned physician profiles to accommodate increased online scheduling data and workflows.

For patients who need access to healthcare information on the go, our Digital Engagement Services team made a series of improvements to the Weill Cornell Medicine app. The Weill Cornell Medicine-branded app links to our patient portal, Weill Cornell Connect, and is available for Apple and Google mobile platforms. In its initial release, the app allowed patients to access their medical records, make appointments, and pay bills. This year we added functionality to support Video Visits, which are now offered by select participating WCM physicians to existing patients.

Once a Video Visit is scheduled between a provider and a patient, the patient can access the Video Visit via the WCM app on their mobile device. This new technology saves travel time, is more accessible for patients with mobility issues, and offers quick convenient access to high-quality care.
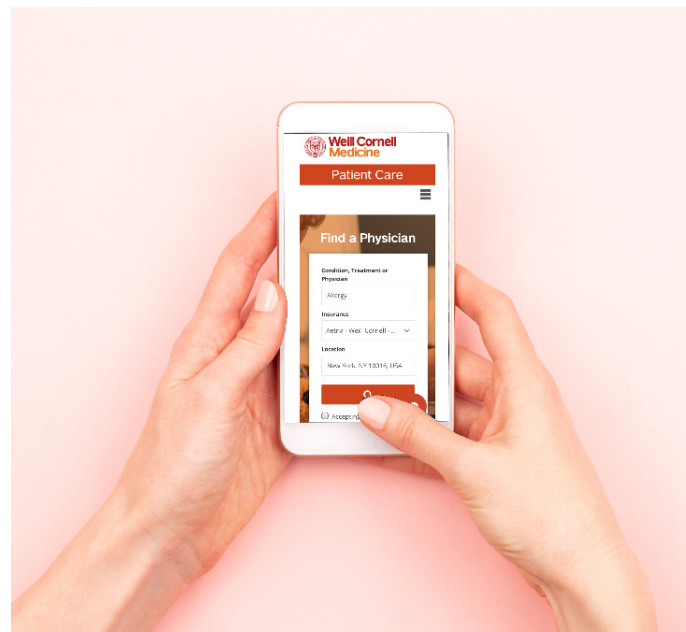
Find a Physician's updated interface and unified search bar make it easier for patients to find the specialist they need.

Weill Cornell Medicine now offers Video Visits, delivering world class care via the WCM mobile app. Learn more about the benefits and participating specialties at weillcornell.org/weill-cornell-connect/video-visits.

The weillcornell.org website is a critical portal between patients and providers. This year, we made a slew of enhancements to make the site more robust and improve the patient experience.

How did weillcornell.org grow this year? Here's what we added:

22 .... practice location profiles

47 .... news posts

85 .... condition and treatment pages

220 .... provider profiles

329 .... events

Improved overall web accessibility score from 63.3% to 88.4%.

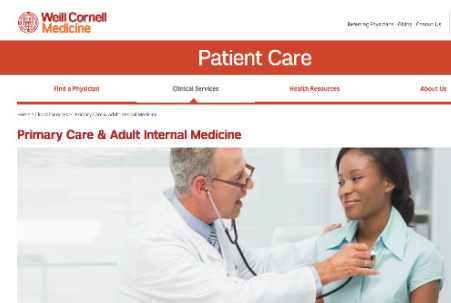Improved compatibility on older browsers commonly used in clinical spaces.

CancerCast Added support for podcast embeds, allowing departments to add an episode player directly into their websites.

Created supporting pages for new Video Visit functionality.

Patient Care

Primary Care & Adult Internal Medicine

We consolidated patient care content by migrating five department websites to weillcornell.org, including Primary Care, Dermatology, Pain Management, Kidney Transplant, and Neurology.
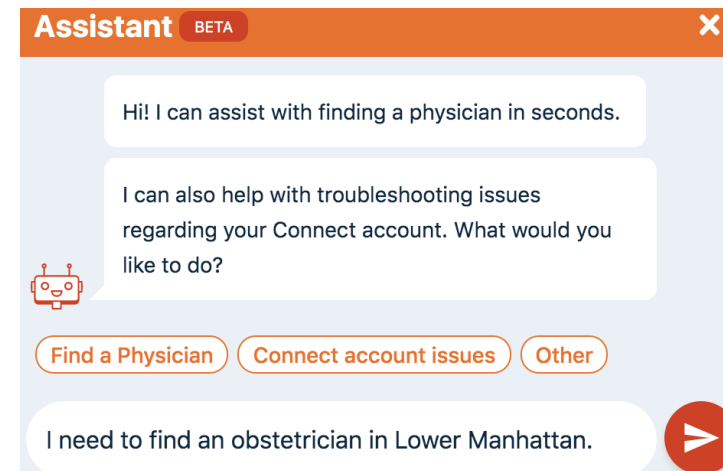
Other Key Accomplishments

- Supported migration of Epic from ITS-supported data centers to Epic Hosting at Wisconsin.

- Deployed beta Virtual Assistant/Chatbot to provide patients automated assistance for *Find A Physician* and Weill Cornell Connect patient portal troubleshooting self-service tools.

- Built an adaptive new process for onboarding cross-institutional physicians and practices to help with the clinical expansion of the Physicians Organization.

- Along with the POIS, the Disaster Recovery (DR) team played an integral part in Phase 1 go-live of the tripartite EpicTogether service. Epic is now hosting WCM data in a fully-resilient environment. All DR testing of network connectivity and data restoration capabilities had positive outcomes. This change required the creation of detailed DR plans to safeguard our clinical data.

- Installed new cellular signal amplification solution in the new Lasdon Hall clinician space on floors 2-5.

Improvements & Upgrades

- Deployed a new Learning Management System (Moodle LMS) for the Care Partners Program in the department of Medicine.

- Upgraded on-premises clinical PACS system (Syngo Dynamics PACS) to prepare for migrating the patient studies archive service to the cloud for the department of OBGyn.

- Worked with the Pediatric Sleep Center to enable the Natus Sleep application to be accessible on any device from within and outside of our network via Citrix.

- Introduced secondary network connections to eight off-campus clinical sites, including two Primary Care sites, two Reproductive Medicine sites, Ophthalmology, WCM Psychiatry Care Center, the Center for Comprehensive Spine Care, and the Comprehensive Weight Control Center, to provide redundancy for connectivity back to campus in case the primary circuit goes down as the result of an outage.

- Enhanced wireless service capabilities to support the Physicians Organization Telemedicine initiative.

- Further enhanced the Weill Cornell Medicine app, including analytics and crash reporting, integrated "Sign Up" tool for Weill Cornell Connect, integrated promotional page to redirect current WCM patients from Epic's MyChart to WCM branded app, and maintained MyChart software development kit (SDK) to keep pace with Epic's latest version.

- Enhanced the Physician Organization Profile System (POPS) editor. We added support for all online scheduling data from Epic that feeds weillcornell.org, added "Accepting New Patients" field, adding search filter for Department/Division, cleaned formatting for Provider Personal Statement and Biography fields to optimize display, and streamlined "Contact Us" page to redirect to the current PO or NYP business units best positioned to assist patients.

Upcoming Projects for FY20

- Support Columbia and NYP EpicTogether go-live.

- Extend Disaster Recovery coverage to Epic-related critical service providers, and perform data center and networking failover test to confirm business resiliency of this critical service.

- Create new tri-institutional Epic post-live application support model.

- Roll out Epic Rover app for mobile users.

- Implement voice-driven patient chat for *Find a Physician* and appointment scheduling on weillcornell.org.

- Expand functionality or WCM Mobile App, including better Find a Physician, MD & Practice Profiles, and Guest Bill Pay.

Assistant BETA

Hi! I can assist with finding a physician in seconds.

I can also help with troubleshooting issues regarding your Connect account. What would you like to do?

Find a Physician | Connect account issues | Other

I need to find an obstetrician in Lower Manhattan.

VIRTUAL ASSISTANCE

We're beta testing virtual assistant technology to help patients find a physician or resolve issues with their Weill Cornell Connect account. This system is built by a new Cornell Tech company called Airbud.

CORNELL TECH

Education Initiatives

ITS supports the technology that WCM students, staff, and faculty rely on to pursue their education and grow their professional skills.

With the regulatory requirements of LCME behind us, this year, the Educational Technologies Group (ETG) returned focus to projects and services that enrich student learning and support teaching.

We debuted two highly-anticipated tools at SMARTFest 2019, our annual department technology fair: WCM Here! and Poll Everywhere. WCM Here! uses Beacon technology to allow people to check into events, download slides, and provide feedback. A number of clinical departments have been using WCM Here! for attendance at Ground Rounds CME events, and a number of academic programs started using it this summer.

Poll Everywhere is used to conduct real-time live polls of large or small audiences. It is an excellent way to increase engagement in the classroom or larger lecture settings. In its first year, Poll Everywhere was used to create nearly 3,500 polls. It is available to all WCM faculty and staff at no additional cost. Tech Tuesday sessions demonstrating Poll Everywhere have been in high demand and will be repeated throughout the coming year. Come and learn how to use it for your next lecture.

This year, we supported the latest renovations of the Education Center, including the Feil Family Student Center — a new LC student space connecting the Ed Center with the Library. The new Student Center includes bright, modern meeting and study space.

Other Key Accomplishments

- Cleaned core data and rolled out new Izenda reporting solution to allow self-service custom reporting from the LEARN student information system for centralized student services (Registrar's Office, Student Accounting, and Financial Aid).

- Constructed the inaugural Continuous Quality Improvement (CQI) reporting site, which monitors metrics and key performance indicators (KPIs) as part of the institution's accreditation cycle. The CQI site was the first production use by the Academic Programs of Microsoft Power BI, the institutionally-supported data visualization solution.

- Completed Phase II of the Student Portfolios project in the Graduate School. Faculty and advisors are able to access an up-to-date and comprehensive view of students' information and academic progress from within the LEARN portal.

- Introduced new Thesis Committee Online Forms for the Graduate School in LEARN, replacing the old paper forms and PDFs. It allows for direct data entry from point of contact, automated workflow, email notifications, and enhanced reporting capabilities, reducing manual effort and errors in data collection.

- In cooperation with the Continuing Medical Education CME program, Educational Technologies developed an in-house CME administrative tool for Program and Activity Reporting System (PARS) data and Maintenance of Certification (MOC) points rather than purchase an off-the-shelf tool.

- Continued the popular Tech Tuesday program, which offers training and demonstrations of newly available and evolving ITS-supported technology every Tuesday at noon. This year we hosted 38 Tech Tuesday sessions, drawing a total of 618 attendees.

Improvements & Upgrades

- Enhanced OASIS to encompass course and faculty evaluations, and student assessments in all medical school courses.

- Completed annual upgrade of Jenzabar Student Information System (SIS) and LEARN portal for increased performance and an improved faculty and student user experience.

- Enhanced iPad program for new medical students and Physician Assistants to include the new Microsoft Teams and Examplify apps.

- Expanded Panopto video capture for the MD curriculum, Medicine Ground Rounds, and Deans Distinguished Lecture series.

- Expanded Canvas LMS for various groups. Medical School Clerkships are now leveraging the Blueprints feature which allows for synchronized content, files, and Feedback Assignments. Anesthesiology residents are now using Canvas instead of iTunes U. HotSpot courses are now used by Medical School, Grad School, and MD-PhD programs to share student resources. Special use Canvas sites are being launched for WCGS Executive Committee, WCGS Curriculum Committee, and History of Psychiatry to explore the potential use of Canvas in a non-academic setting.

Bursting the Bubble Sheet

This year, we scrapped the aging paper scantron tests in the Phase 1 curriculum in the medical school, and implemented a new online quizzing system called Examplify by ExamSoft. In FY19, users created 20 assessments and 2,194 total questions using multiple question types. No #2 pencil? No problem.
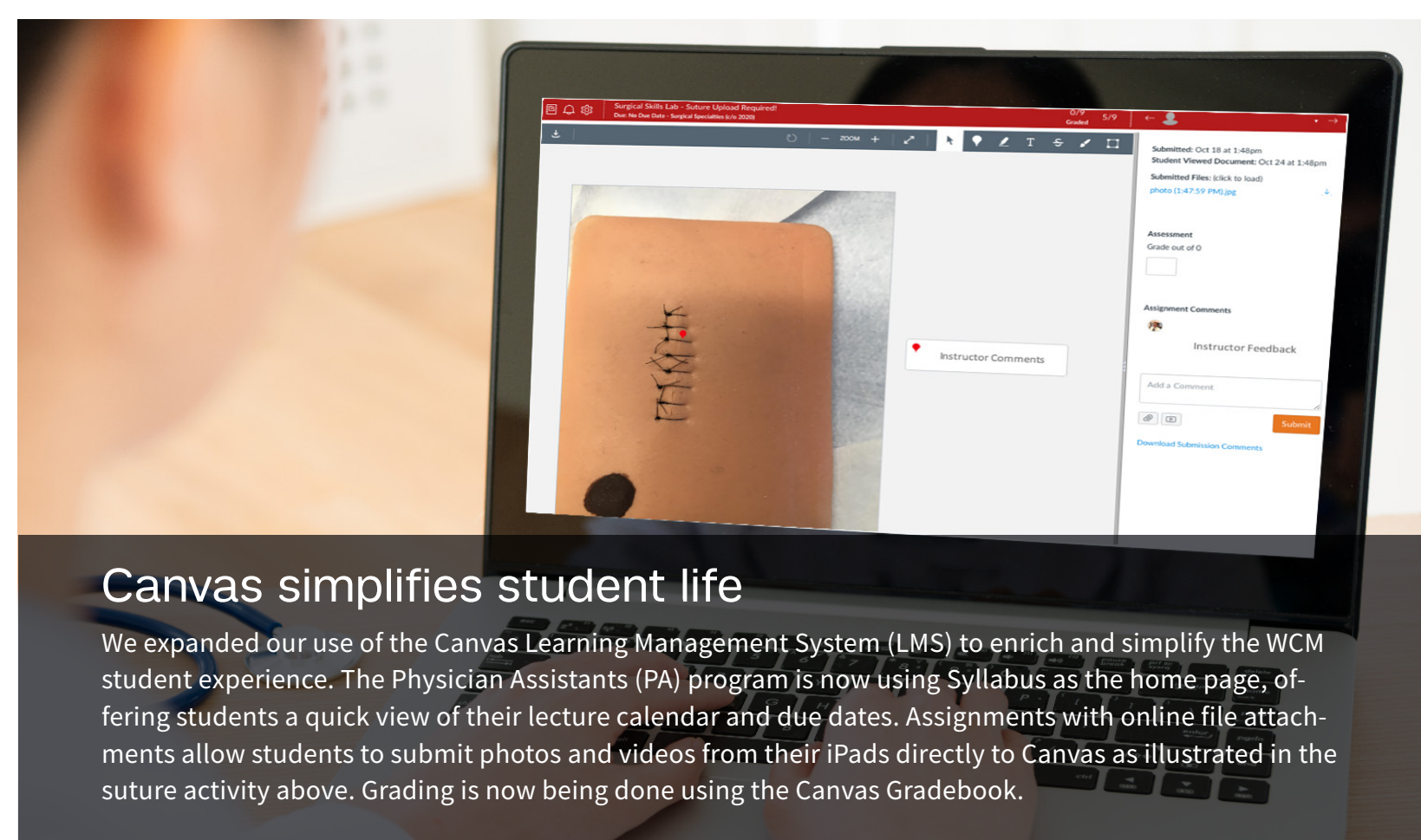
Canvas simplifies student life

We expanded our use of the Canvas Learning Management System (LMS) to enrich and simplify the WCM student experience. The Physician Assistants (PA) program is now using Syllabus as the home page, offering students a quick view of their lecture calendar and due dates. Assignments with online file attachments allow students to submit photos and videos from their iPads directly to Canvas as illustrated in the suture activity above. Grading is now being done using the Canvas Gradebook.

Upcoming Projects for FY20

- Automate the import of student data into the Jenzabar Student Information System environment to improve data quality and efficiency.

- Implement new Alumni system to enhance alumni tracking and engagement.

- Implement a new document management solution in the Financial Aid office to improve security and boost efficiency.

- Enhance the online forms used by the Graduate School to provide better features, functionality, and improved reporting for compliance.

- Expand OASIS to include data on Faculty Effort within the medical school.

- Expand the usage of the WCM Here! beacons-based attendance tracking system.

- Enhance the new Continuing Medical Education (CME) administrative platform.

- Implement an enhanced web app to assist students learning Functional Neuroanatomy (FNA).

- Continue web accessibility remediation project to ensure education sites are compliant with all CU accessibility policies.

- Create web analytics reports to understand how education websites are performing and understand journeys of current or prospective students.

- Create web presence for the Mentoring Initiative.

Wellness Qlinic

The Weill Cornell Medicine Wellness Qlinic is the first student-run clinic in New York City to offer free mental health care for those who identify as LGBTQ+, regardless of insurance status. We are dedicated to serving the needs of this community and to bridging the mental health disparities they often face.

The Wellness Qlinic is open Wednesdays from 6 – 9 p.m.

About Us

We're proud to help launch an official WCM-branded website for the Wellness Qlinic (wellnessqlinic.weill.cornell.edu), providing a new student-run community clinic a professional web presence. The Wellness Qlinic provides free mental health care to NYC's LGBTQ+ community.

Samuel J. Wood
Library

THE SAMUEL J. WOOD LIBRARY SEEKS TO BE THE MOST PROGRESSIVE MEDICAL LIBRARY IN THE COUNTRY. TO THAT END, WE CONTINUED TO EXPAND OUR SERVICES TO THE WCM COMMUNITY, AS WELL AS STAY AT THE FOREFRONT OF RESEARCH, EDUCATION, AND TECHNOLOGY.

N.Y. HOSPITAL.

NYP History

Courtesy of our Medical Center Archives, this illustration shows a patient being transported to the first New York Hospital, now NYP, chartered in 1771 by King George III.

Our Clinical Medical Librarian program – which provides patient care information at morning report and clinical rounds – expanded to support more departments, including the Department of Surgery's Burn Unit. This year, we handled over 1,500 reference transactions, a 290% increase from three years ago. We were also acknowledged in NYP's Magnet Recognition for its nursing program, with our librarians cited as contributing to the Magnet exemplars of "New Knowledge," "Innovations," and "Improvements." Additionally, our librarians now have access to AllScripts, which ensures their contributions are recorded in patient records, allowing for heightened communication with the clinical team and increasing the visibility of the librarian's role.

Additionally, the Medical Center Archives coordinated the first-ever Archives Advisory Committee, comprised of senior leaders who bring important perspectives from both NYP and WCM, as well as key voices in the medical history community. The committee will advocate for and help raise the visibility of the Medical Center Archives, supporting its stewardship and preservation of the institutional heritages. In FY20, the committee will play a significant role in efforts to celebrate the upcoming 250th anniversary of NYP, chartered in 1771 as the second oldest hospital in the country.

SMARTFest

In February, we hosted our 6th Annual SMARTFest, which aims to educate the WCM community about our IT and library services. **Almost 1,600 people attended the event**, with visitors from Harvard, Indiana University, NYU, Columbia, Hofstra Northwell, and the Einstein Institution present to observe and implement similar undertakings at their own organizations. Despite being in its sixth year, the event included a few firsts, like the Dell Tech Rally to learn more about computers compatible with our services, and using Poll Everywhere to collect guest feedback. The event was so large this year, we expanded to Griffis Faculty Club to accommodate more vendors and services.

1,587
The number of attendees at this year's event. Our attendee count has grown almost 89% since 2015, increasing every year.

$25.4K
The number of sponsor donations received. We've well surpassed the $2,000 we raised five years ago to host our event.

30
The number of booths at this year's event. Back in 2015, we only had 16 booths, seven of which were vendors. This year, 25 vendors participated.

EDITING SERVICE HELPS PHYSICIAN WIN $1 MILLION GRANT REAPPROVAL

The Library offers a free grant editing service for WCM grant applicants, focused on assisting junior faculty and investigators resubmitting applications that were scored, but not funded. **Dr. David Nanus**, the Mark W. Pasmantier Professor of Hematology and Oncology in Medicine, requested help when he was not reapproved for a grant – the Department of Defense's Prostate Cancer Clinical Consortium Research Site Award – on first submission. After our staff reviewed the application and provided suggestions for improvement, Dr. Nanus' second resubmission was successful. **He was awarded approximately $1 million** to investigate targeted therapies for prostate cancer patients, receiving $200,000 per year for three years in direct costs.

Visit **its.weill.cornell.edu/grantediting** for more information on this service.

Other Key Accomplishments

- Taught systematic review methods and specialized curricula in programs such as the Clinical Translational Science Center (CTSC) Biostatistics Lecture Series and Health Professions Recruitment and Exposure Program (HPREP); contributed to nine published systematic reviews.

- A WCM systematic review on venous thromboembolism treated with lenalidomide changed the standard of care, and hence was incorporated into UpToDate in April 2019, translating research into clinical care.

- Taught CTSC course on Science of Team Science.

- Launched a new author disambiguation tool called Reciter, which we now use for reporting and providing data to departments and other information systems.

- Provisioned 790 scientific software licenses from our Scientific Software Hub to faculty, staff, and students. The median time to fulfill a request and provide the license file is now only 2.5 hours.

- Completed Salzburg Seminars Oral History Project.

- Processed 64.5 linear feet of archival material documenting the unique history of the medical center.

Improvements & Upgrades

- Opened the new Mac Computer Lab in the 24/7 area.

- The Data Core projects are now accessible through myApps, making access quicker, easier, and more consistent, especially for off-site users.

- A mirror to the Comprehensive R Archive Network (CRAN) repository has been added to the Data Core, allowing users the ability to self-install R packages from within their secure projects.

Library by the numbers

Our Library does more than offer reference sources and study spaces. We provide a plethora of resources to the WCM community, from health seminars, to printing, and more. Here are just a few of the services we offer:

OUR SERVICES IN A NUTSHELL

Need an academic poster?
Print one right on campus!

Our Duplicating team printed **1,900 academic posters** this year. We've increased production by 83.5% since 2014. Contact (212) 746-0935 for information on printing an academic poster for presentations.

Scientific Software Hub
softwarehub.weill.cornell.edu

We had **790 requests** for access to software licenses available through our Scientific Software Hub. This includes licenses like R Studio, GraphPad Prism, SAS, MATLAB, and other tools for bioinformatics, statistics, and more.
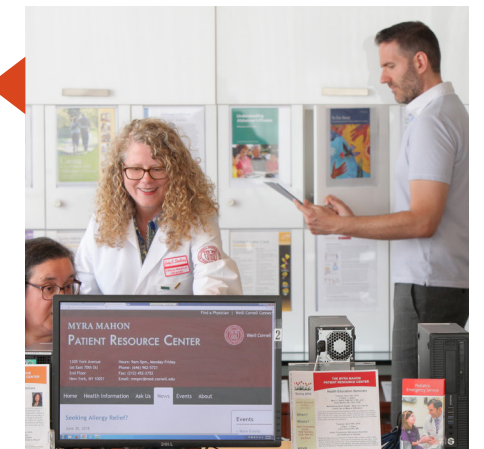
Helping patients at the PRC
Myra Mahon Patient Resource Center

The PRC, which provides health information to patients and their families, saw almost **8,700 visitors**, a steady increase of 12% since FY16. Our new Cancer Librarian program helped 473 of those visitors, with 17% returning for more information.
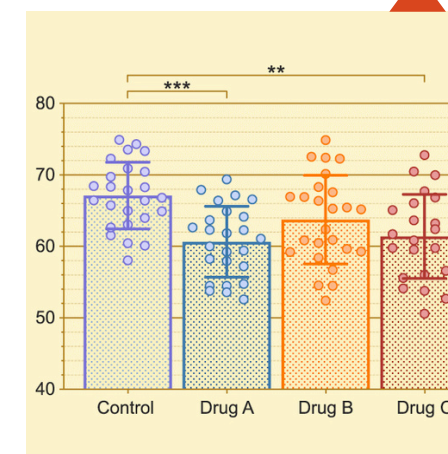
Health Education Seminars
Empowering patients

Library staff hosted **34 health education seminars** this year at the PRC. These seminars increase health literacy among our patients, and include a variety of topics from managing medication, to cancer, and more!

New Data Catalog Service

Our Library staff worked extensively throughout FY19 on a new service called Data Catalog, which launched in FY20. The Data Catalog lets researchers search for data sets available at WCM, and identify their purpose, content, and how to request access to them. Visit **datacatalog.weill.cornell.edu** to review available data sets.

The **Medical Center Archives** collects, organizes and preserves the records of NYP and WCM, and makes them available for use by students, faculty, staff, and the public. The extensive collection chronicles health care, scientific research, and medical education dating back to 1771. This fiscal year, the Archives engaged in new outreach efforts and experienced a **246% increase in the number of individuals touring the center.**

- ArcGIS is now available in our Scientific Software Hub of discounted software available to faculty, staff and students.

Upcoming Projects for FY20

- Participate in the launch of a Telehealth Information Service to reach cancer patients in Brooklyn and Queens.

- Launch VIVO profiles for PhD, MD-PhD, and MD students.

- Provide faculty access to our ReCiter publication management and de-duplication tool, and improve scoring accuracy.

- Build a bulk publication review tool for DAs and DIVAs to accept publications in ASMS.

- Gain approval for Data Core to store New York State Medicaid data for research.

- Populate library's institutional repository (IR) with PubMed Central content.

- Recruit, train, and mentor Clinical Medical Librarian intern.

- Update and refresh computers in PC Computer Lab.

## New Book on WCM-Qatar's History

After an incredible amount of work from our Medical Center Archives team, *Weill Cornell Medicine-Qatar: Global Pioneers in Healthcare* (pictured at right) was published. The Archives played an instrumental role in contributing to the book's content, which covers the history of WCM's Qatar campus. WCM-Q was established in 2001 as the first medical school in Qatar.

Improving the IT Experience

LAST YEAR, WE TOLD YOU ABOUT OUR INITIATIVE TO DELIVER A BETTER IT EXPERIENCE TO THE WCM COMMUNITY – AND WE'VE BEEN BUSY!
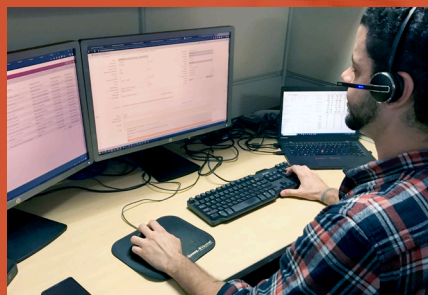
SERVICE MANAGEMENT

In November, we overhauled five core IT processes used to serve WCM. Whether we're troubleshooting, fulfilling new requests, or providing "how-to" instructions, new workflows, training, and tools within ITS have made this faster and better.

Next year, we will be focusing on a transformational program that seeks to elevate IT services to a new standard of management. Regardless of the institutional complexity, age of the systems, or regulatory bureaucracy, we want to make WCM users more productive and efficient.
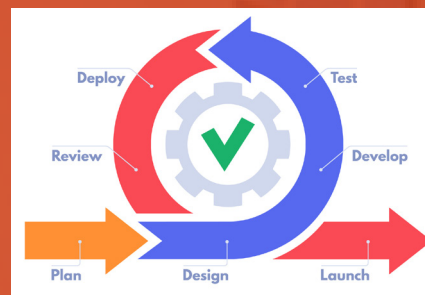
PROJECT SUCCESS

We introduced two new approaches to improve how we deliver projects. Our Agile framework allows for rapid prototypes and feedback to build solutions where the end state may not be clear at the start. And our Light framework allows simpler projects that don't need comprehensive control to move more quickly.

Next year, we're taking a fresh look at how projects start up by developing new pathways to ensure low-risk projects can start sooner, while the projects with the biggest impact get the right level of oversight.
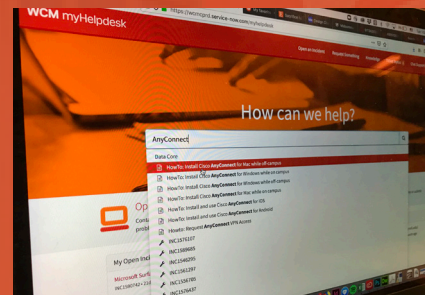
EXPERIENCE OF IT

We're continuing to bring usability review and user testing to our major applications, like WBG and WRG. This year, we overhauled myHelpdesk, which now features live chat with our technicians, a library of help articles, a catalog of request forms, and the ability to update the status of your open tickets.

myHelpdesk will continue to evolve with new features and functions this year. We're also working on new ways to incorporate feedback for all systems so that we can add useful new functions, while removing things that don't work well.

STAFF TRAINING

A full overhaul of our technician onboarding curriculum, as well as multiple new training courses in support of the activities under Service Management, helped both newcomers and veterans understand their roles within WCM.

We also launched a new informational resource of personas to help our staff understand the similarities and differences between the types of users we support. Through better understanding our community comes better empathy and better service.

EMPLOYEE ENGAGEMENT

To help keep our staff plugged in to everything going on at WCM, we've revamped our internal communications and activities. By rounding up institutional news of interest, interviewing internal staff, and recognizing outstanding employees, we've set up our teams to be stronger and more engaged.

HOW ARE WE DOING?

Any time you contact ITS for assistance, we open a ticket to keep track of your inquiry or request. After we finish assisting you, you typically get an automated email in your inbox with a survey on how we did. Please fill out this survey any time you receive it — it helps us improve our services! We read every comment and they truly make a difference.

3,419

The number of service requests made through our new Request module on myHelpdesk in FY19 (the feature launched in December). You can now request a multitude of services online and have them routed to the right person for more streamlined assistance.

403

The number of project requests we received in FY19, which is slightly higher than last year. However, half of these requests became full-fledged projects, while last year only 33% became projects due to parameters like resources and meeting WCM goals.

22

The average number of days to charter a project. This has increased by four days since last year, but this was expected as we do a more thorough job of evaluating higher risk initiatives before approving them to be projects. In FY15, it took about 35 days to charter a project, so we're getting to a right balance of efficiency versus determining project success.

How We
Support Our Services

WE'VE SPENT THE LAST YEAR IMPROVING HOW WE GET SERVICES OUT TO YOU — FROM THE GROUND UP — AND ENSURING THOSE SERVICES RUN SMOOTHLY ONCE WE INTRODUCE THEM. EVERY YEAR, WE EXAMINE OUR PROJECT MANAGEMENT PROCESS TO SEE HOW WE CAN SEAMLESSLY PROVIDE SERVICES AND UPGRADES, AND TWEAK OUR TECHNICAL SUPPORT SO IT'S MORE HELPFUL AND EFFICIENT.

Project Management Growth

The Gartner Project & Portfolio Management Maturity (PPM) Model helps our department identify and decide which improvements we should make to enhance our project management processes. The model uses five levels of maturity on a scale of 1-5, with 5 being the most innovative. Our overall score of 3.2 marks the third year in a row we have seen an increase in project management maturity, with improvements in how we handle Process, Finance, and People.

People 3.3
Technology 3.6
Finance 2.3
Process 3.4
Relationships 3.3
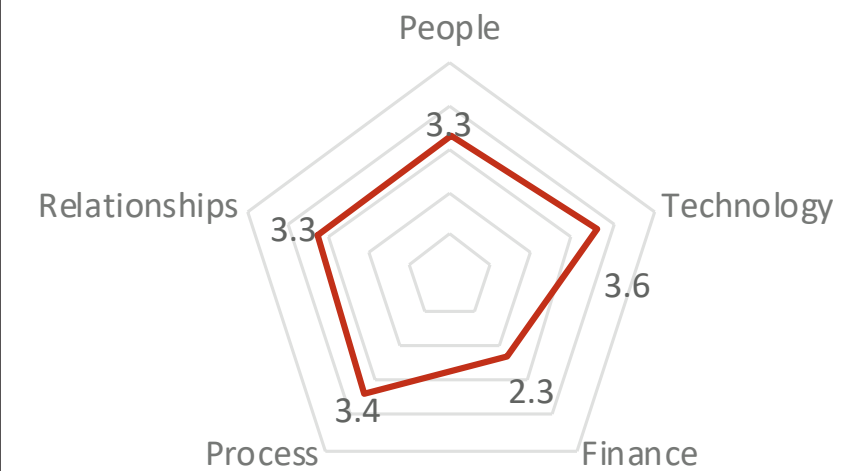
Peak monthly chats in FY19

683

New chat service brings more support options

Our tech support services have expanded to include chat support, which allows you to multitask while getting your issue resolved versus waiting in the queue for a technician to answer your call. Via myHelpdesk, you can open a chat session with a technician and can resolve your issue online. While users were initially slow to use chat when we launched it last November, we saw a significant spike in use in March, reaching 683 chat sessions that month. To use this service, click **Chat Support** at the top of the myHelpdesk homepage.

In FY20, we plan to make technical support even more convenient at WCM by introducing scheduled SMARTDesk appointments. No more waiting in line! Simply open a calendar on our site to see available time slots and select the one most convenient for you.

Infrastructure Initiatives

This year, our ITS Infrastructure team adopted a cloud-first policy.

This approach helps to reduce operational overhead, increase agility, and provide the type of geographic resiliency we could not achieve using a traditional on-premise and co-location infrastructure strategy. Cloud services come in many forms, simply remote hosting to true cloud Software as a Service (SaaS) offerings like Office 365 or Box. Cloud services allow us to focus on user needs without the overhead of managing the underlying application and technology stacks.

Our primary provider of cloud services is Amazon Web Services (AWS), but we also support Microsoft Azure, and have emerging support for Google's cloud as well. AWS is the most mature provider and has proven also to be the most in-demand throughout the college. ITS' own developers build new services primarily in AWS.

As part of our transition to cloud-first, multiple teams throughout ITS are retraining. This past year more than half of our Infrastructure team earned their AWS certifications. This enables ITS to provide faculty, staff, and our internal users support for the faster, more cost effective, and vastly more scalable cloud technologies like containers, hybrid and virtual storage, elastic computing, microservices, and much more. The cloud has been a major disruption in IT universally, and ITS is committed to helping WCM take advantage of this radically new way to deliver software and services.

Need more space?

This year we supported big expansions to our free Box Cloud Storage solution, which offers users unlimited cloud storage and handy collaboration features. Services like Box allow ITS to focus on user needs without the overhead of managing application and technology stacks.

5,000
total Box users

88 TB
collective storage space used

Other Key Accomplishments

- Introduced DevOps practices, such as pipelines and Infrastructure as Code, within our Cloud environments to improve speed and agility when deploying cloud solutions.

- In advance of a potential data center shutdown due to electrical maintenance, the ITS team created a detailed runbook and practiced it so that ITS would have a prioritized way to shut down the data center and bring it back up.

- Decommissioned Slack chat software and deployed MS Teams, a product already available with our Office 365 subscription, to over 400 members of the ITS department. Following the seamless transition of the ITS department, we began onboarding additional departments and WCM students to MS Teams.

Improvements & Upgrades

- Upgraded our VPN service to support faster, more reliable, and more secure remote connections to WCM.

- Implemented new network, telephony and wireless technology in Lasdon Hall Floors 2-5.

- Introduced secondary network connection supporting the Physicians Assistants program @ 570 Lexington Ave.

- Completed the third year of our Web Modernization Initiative, with the goal to move all public-facing WCM websites to our current institutional platform and branding. This fiscal year we moved twenty websites, and as of July 97% of the 114 eligible WCM websites have been migrated to the Weill Cornell Medicine brand.

Upcoming Projects for FY20

- Increase resiliency of network connections to cloud providers.

- Continue adoption of Azure as a secondary cloud provider and provide self-service Azure subscriptions.

- Released BoxDrive to replace Box Sync for simpler, more reliable cloud file synchronization.

- Upgrade Secure File Transfer system to process larger files securely, and evaluate options for very large files (1TB+).

- Deploy Microsoft Teams to entire WCM community and retire Skype for Business.

- Upgrade Listserv to version 17.0 to enable updates to existing Listserv web interface.

- Enable O365 archive mailbox to allow users with large mailboxes to reclaim valuable storage by moving or archiving older items into a secondary mailbox that is always accessible.

- Deploy Microsoft OneDrive to allow users to store frequently-used files and folders in the O365 cloud. OneDrive also makes files available on multiple devices and allows for collaboration.

- Create web analytics reports to understand how education websites are performing and understand journeys of current or prospective students.

- Investigate cloud-hosted options for Confluence to keep our software up-to-date and improve uptime capabilities.

- Upgrade core Avaya VoIP phone system to improve system security and prepare WCM to integrate new technology.

- Install new cellular signal amplification solution in the existing Lasdon and Olin dormitory space.

- Perform the first business-focused continuity readiness assessments of our critical SAP enterprise service.
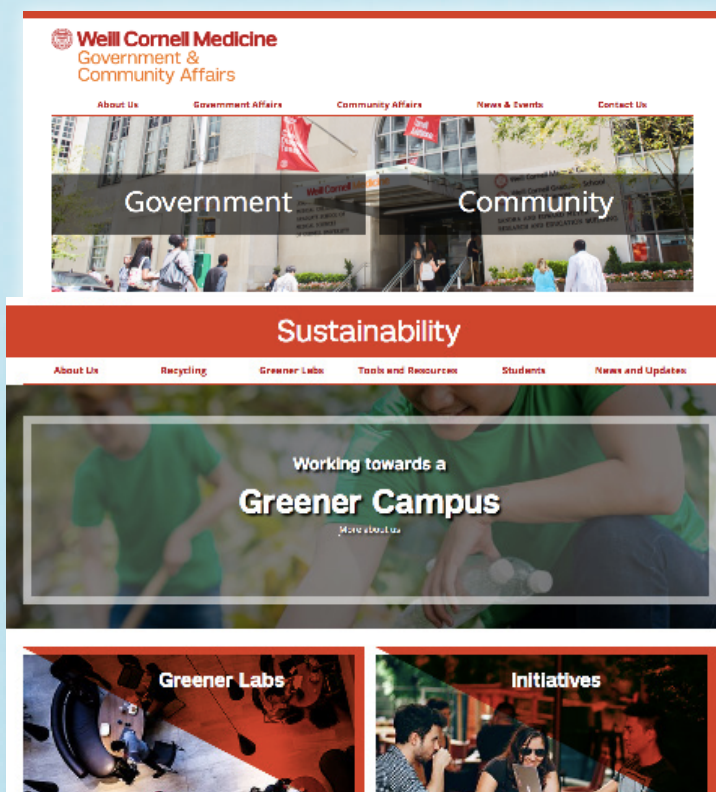
NEW WEBSITES GIVE POLISHED WEB PRESENCE TO VITAL WCM GROUPS

This year, our Digital Engagement Services group was hard at work moving existing websites to our current institutional platform, as well as building new sites from the ground up. These brand new sites offer greater visibility to groups that are important to the culture and operations of the college. This year's sites include: Event Services (**eventservices.weill.cornell.edu**), Government & Community Affairs (**gca.weill.cornell.edu**), Budget and Financial Strategy (**budget.weill.cornell.edu**), and Sustainability (**sustainability.weill.cornell.edu**).
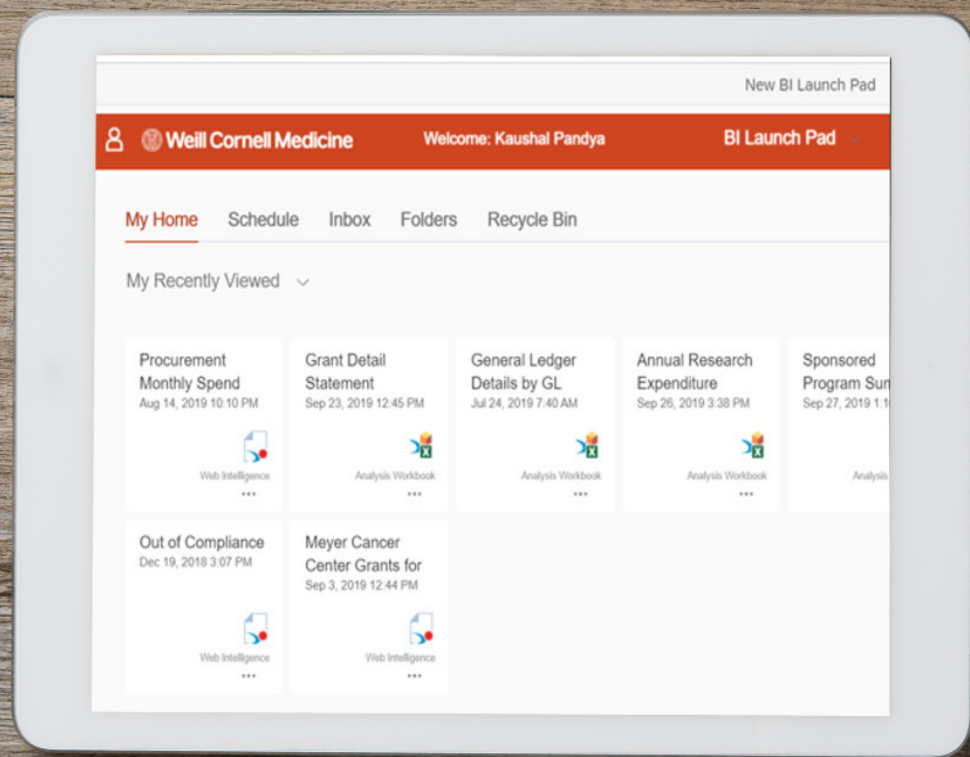
System & Service Enhancements

The most visible example of our push to optimize end-user experience is our all new myHelpdesk portal launched in November of 2018.

The new portal aims to be the first, fastest, and easiest way for users to get what they need from ITS. There is a new live chat feature, new self-service request forms, and a rapidly expanding knowledge base for solving common problems.

On the business side, the Business Intelligence team made strides in re-imagining financial reporting. We launched a new tile-based user interface for BI Reports within the Weill Business Gateway (WBG), making the BI Launch Pad consistent in look and feel with the rest of WBG, which was overhauled last year. The new UI simplifies access points and reduces navigation steps, offering an improved user experience.

In conjunction with the fresh UI, we released a new report, Summary Fund Account Statement, which is a combination of eight existing reports. The Summary Fund Account Statement allows departments to view activity and budget balances for all accounts, as well as Funds and Sponsored Programs, all in one place. This report lets users create customized outputs with easy drag-and-drop functionality, and share favorite views with colleagues.

New BI Launch Pad

In Spring 2018, we overhauled the Weill Business Gateway (WBG) with a user-friendly look and feel and a series of enhancements. This year, we extended the sleek tile design to the New BI Launch Pad.

Improvements & Upgrades

- Added capability for employees to update their emergency contact information using Employee Self-Service rather than submitting a PDF form to HR.

- Introduced document management to the Procurement Card application, which allows users to attach all supporting documents related to a Pcard purchase. This simplifies the approval and reconciliation process.

- The Research Space inventory system now captures exact research space fundamentals, including square feet, benches, research/lab rooms, room types, and assigns them to labs for better reporting on research visualization.

- Revamped existing Long Term Disability (LTD) programs with programs for Basic LTD (employer paid), Voluntary LTD (employee paid), and an additional option for Individual Disability Insurance (employee paid), offering employees more coverage options. Updated employee self-service, benefits plan configuration, confirmation statement, pay statement and payroll processing updates to implement the changes.

Upcoming Projects for FY20

- Launch the ITS Scorecard to give departments a consolidated view of their ITS-related data.

- Launch new AnyConnect VPN client remote access solution.

- Roll out new website navigation structure, matching that of weill.cornell.edu, across all WCM Drupal websites to improve searches of sub-pages.

- Expand existing events content management system (Localist) to support larger events, event registration, event documents and handouts.

- Begin discovery to upgrade our content management system to the latest version to implement standardized features and content types that would reduce development and deployment time, as well as a modern editorial workflow that allows more content contributors to participate in web site management.

- Optimize the touchpoints and processes where we intersect with Capital Planning projects, to provide departments better technology support during relocations and space buildouts.
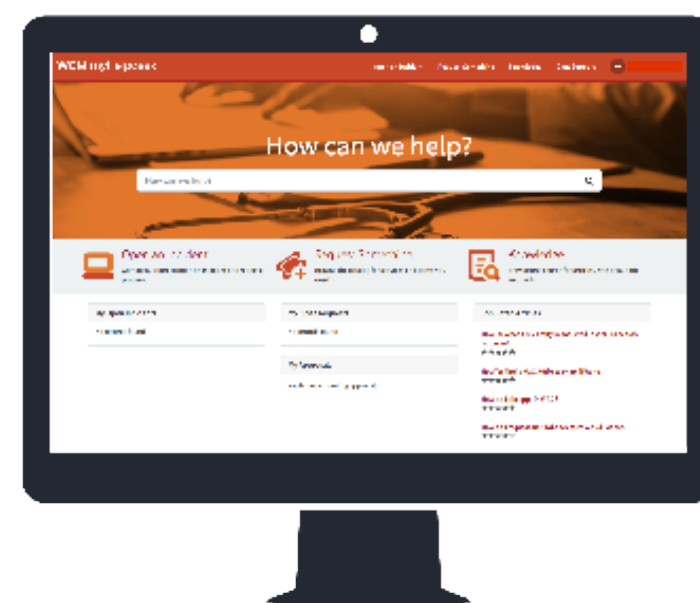
Other Key Accomplishments

- Enabled single-sign-on for Windows desktops reducing the number of username and password prompts when accessing applications like Epic and SAP.

- Upgraded File Sharing service with faster performance and a consolidated backup and mirror option that reduces the cost for departments.

- Launched WBG Journal Voucher eForm that lets users submit journal entry details electronically and monitor the progress through workflow approval steps. The JV eForm simplifies what was a cumbersome manual process, with the additional benefits of visibility and audit trails.

- Added Avaya Phone Queue Agent data to Cognos reporting to help clinical departments better manage patient access.

- Launched two new forms in SuccessFactors for staff self-appraisal and manager appraisal. The new forms simplify the completion process and managers can route the forms back to employees as needed.

- Our Assisted Listening Devices can now be used in more campus locations, including the Belfer Research Building, Weill Greenberg Center, and in the Uris and Weill Auditoriums.

- Implemented new Foreign National Taxation feature in SAP Payroll to cover the non-resident alien taxation process. The new functionality in SAP facilitates the capture, processing, and tracking of all relevant data mandated by the Internal Revenue Service (IRS) and Immigration and Naturalization Service (INS) for fully compliant payroll processing of non-resident employees. This update will improve the production of year-end tax forms for Payroll and Compliance.

myHelpdesk Makeover

The new and improved myHelpdesk portal is the first place to go for ITS Support. Aside from placing tickets to troubleshoot IT issues, you can now also request services that are directed to the appropriate division, look up knowledge articles, and start a chat session with a technician for assistance. You can visit the site at **myhelpdesk.weill.cornell.edu**.

Security & Identity

Quest, LabCorp, Capital One, Instagram, WhatsApp, Dow Jones – even Russia's FSB – have all been breached. And that's just 2019.

Healthcare companies top the list of hackers' preferred targets. In a world where these breaches seem commonplace, what is WCM doing to avoid a similar situation?

Quite a lot, actually.

While data security is a top priority for ITS, our most important security protection is educated users. ITS is constantly improving our technical protections that try to balance security and usability, but these aren't foolproof. We work to ensure our users know how to protect their own personal information and the private data we work with on a daily basis.

This year, we introduced a variety of tools to protect our network and systems. Our new BigFix system can detect and find lost laptops, and identify machines running older, insecure versions of critical software. Additionally, we are preparing to use machine learning and automation to identify anomalous activity more quickly, reducing exposure for users and the institution.

We also updated and simplified the WCM annual High Risk Data Attestation, an online survey which records how a person works with, or could reasonably be exposed to, Protected Health Information (PHI) and Personal Identifiable Information (PII). The entire WCM community must complete this survey annually to comply with HIPAA and other regulations, and so they understand the impact of their technology use. It is one of our most important tools for ensuring users know to protect the data entrusted to the college.

As we move into FY20, one of our goals is ensuring the right people have the right access to our systems with projects to improve offboarding users who leave WCM and use various advanced tools to identify every users'

individual risk profile so we can make life a little easier for anyone not at high risk. In fact, we have even kicked off an ambitious project to try to get rid of the majority of passwords within three years.

The Situation Room

How would ITS respond in a crisis while keeping vital services up and running? Our leadership team (at right) takes part in an annual Disaster Recovery (DR) exercise to analyze their response in a hypothetical scenario. Our DR compliance program was created to ensure the owners of major services, like Epic, have documented DR tests to plan for worst-case scenarios. In FY19, ITS achieved a 98% DR compliance of critical services, the highest level on record.

Protecting Our Data

WCM is no stranger to cyber attacks. During a given month, our network is bombarded by anywhere from 5 to 8 million attacks. Bursts in activity can increase the number of attacks four or fivefold. That's where our Security & Identity team steps in to make sure our data is protected. Here's where most of our cyber attacks originate, excluding the United States:

CANADA 6% **DENMARK 4%** **GERMANY 7%** **ESTONIA 8%** **CHINA 23%**

UNITED KINGDOM 5% **FRANCE 3%** **QATAR 4%** **INDIA 4%** **JAPAN 4%**
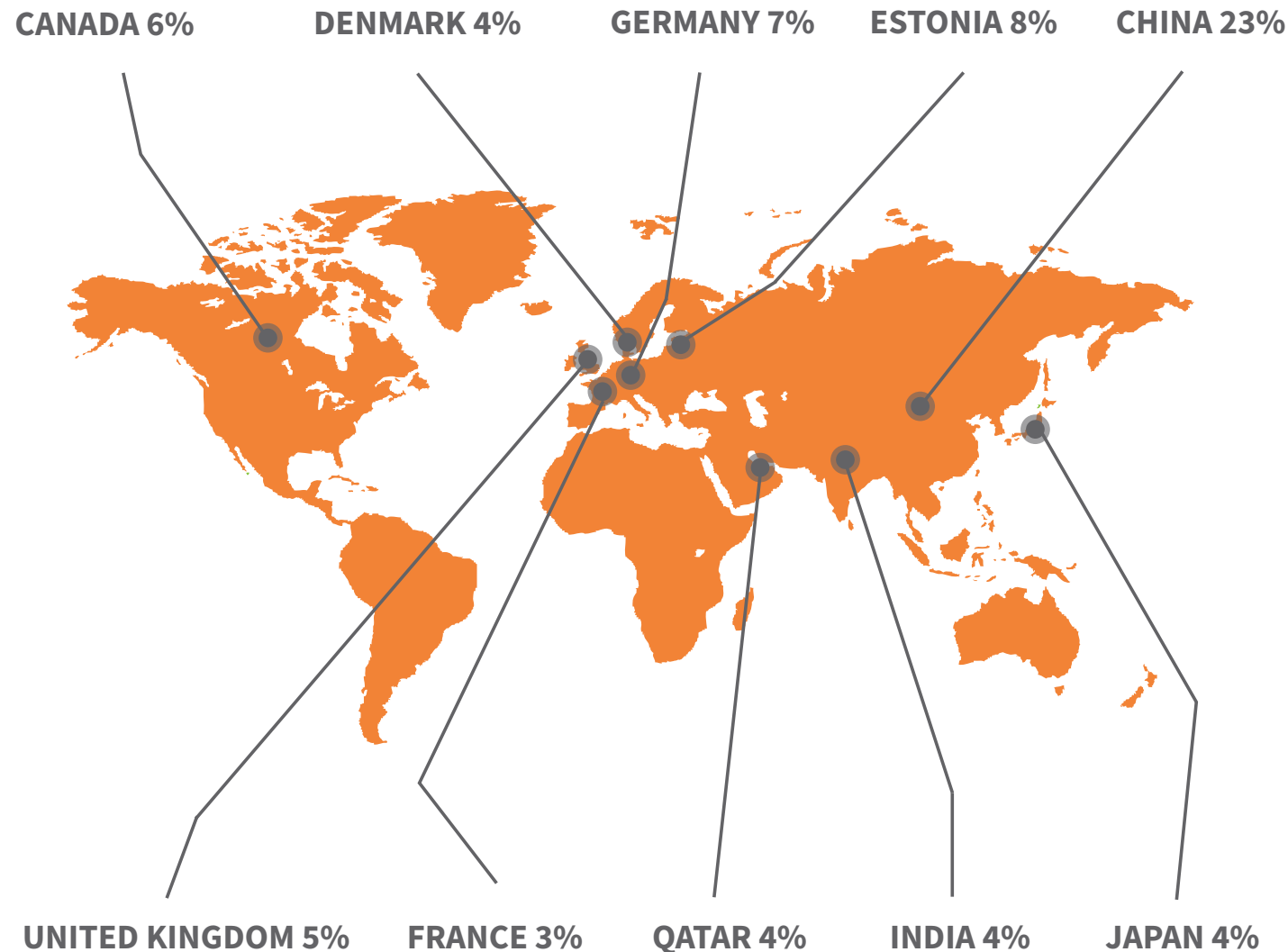
Traveling abroad?
ITS loans laptops to staff traveling to countries which pose a high risk of cyber attacks against the U.S. Some nations prohibit encrypted devices, so taking a standard WCM laptop with you may allow your computer to be compromised. Visit **its.weill.cornell.edu/travel** for more information on protecting your data abroad.

Other Key Accomplishments

- Implemented both internet and data center firewall replacements with next generation security appliances.

- Deployed more security sensors across the campus network, helping us better protect desktops and laptops.

- Participated in National Cyber Security Awareness Month, an annual collaborative effort between government and industry to ensure people have the resources needed to maintain their online security. Our staff distributed tips throughout campus that ranged from learning about the Internet of Things to creating better passphrases.
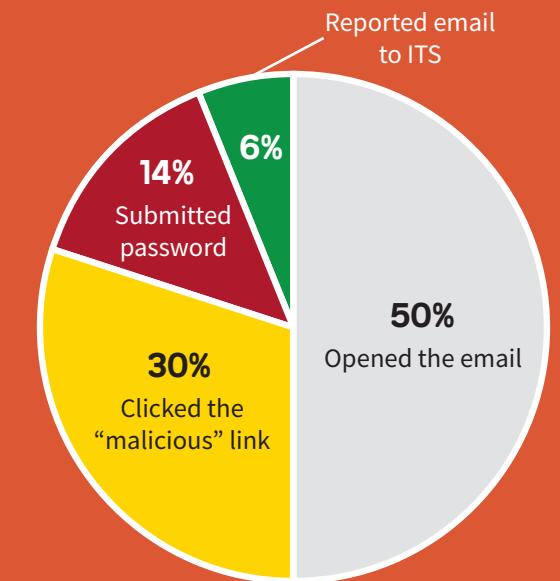
Improvements & Upgrades

- Automated updates from the identity directory to WCM's badging system to enable quicker issuance of ID cards to new hires.

- Integrated 10 additional applications to our WCM Web Login, where users input their CWID and password to access a given system. Using Web Login streamlines how users access our services and provides a consistent experience across applications.

Upcoming Projects for FY20

- Design a comprehensive offboarding tool for WCM departments to manage access to services when staff leave the institution. The system will give authorized users a workflow and checklist to follow to ensure that offboarding is properly followed.

- Implement a Cloud Access Security Broker (CASB) solution to protect our cloud collaboration tools – like OneDrive, Box and SharePoint – and help us monitor for the flow of PHI information to the cloud.

GONE PHISHIN'

Phishing is the act of trying to extract personal information from people through fraudulent emails. Every year, our Security team sends out its own phishing email to everyone at WCM, testing to see how many people ignore or report a potential phishing scam. Out of approximately 10,500 users, here's how we did:

Pie chart:
- Reported email to ITS **6%**
- Submitted password **14%**
- Clicked the "malicious" link **30%**
- Opened the email **50%**

These results are better than in previous years, and we've decreased actual phishing incidents by almost half since we began these tests. However, there is definitely room for improvement. Learn more about phishing scams at **phish.weill.cornell.edu**, and forward suspicious emails as attachments to our Security team at **spam@med.cornell.edu**.

YOU'VE GOT MAIL

And a lot of it. Throughout FY19, all WCM email accounts received a total of almost **160 million emails**! While the occasional spam or phishing attempt slips through, most never even hit your inbox. That's because our Security team blocks them for you, **preventing over 70.4 million malicious emails** from cluttering your account.

Information Technologies & Services
1300 York Avenue, Box 12
New York, NY 10065
212-746-4878

its.weill.cornell.edu

2019 **Annual** **Report**

Weill Cornell Medicine
Physician Organization

Contents

From the Chief Medical Information Officer

"While our emphasis will continue to be on technologies that transform care delivery, we will also focus on the efficiency and satisfaction of our faculty and staff."

Health information technology is foundational to the success of Weill Cornell Medicine. The Physician Organization Information Services Division (POIS) provides sophisticated health information systems and services to support the clinical operations of the Weill Cornell Physician Organization. We implement technology to improve the quality and safety of care, enhance both the patient and caregiver experience, and achieve greater efficiency and cost effectiveness.

Clinician-led, POIS strives to continually optimize workflow via its implementation of the Electronic Health Record and Practice Management System. Our IT systems are deployed to facilitate growth and achieve tighter integration with our partners and affiliates. Technology is prioritized that improves the patient experience. We will continue to implement a full suite of self-service tools for patients to better access our services and engage in their care.

Analytic tools that support strategic decision making will be refined. We will use data to help us streamline operations and more cost-effectively manage patient populations, while promoting new scientific discovery.

During the upcoming fiscal year, we will go-live with the first instance of the new tri-institutional enterprise Epic system. The shared Epic system will improve integration across the entire continuum of care. Standardized system build will allow regionalization of safe, efficient, and high quality care.

While our emphasis will continue to be on technologies that transform care delivery, we will also focus on the efficiency and satisfaction of our faculty and staff. Via specialty-based configuration and user-specific system personalization, Weill Cornell will optimize the EHR and improve faculty well-being.

This annual report summarizes the activities of POIS in Fiscal 2019. It serves as an inventory of key accomplishments and provides statistics that depict the scope and scale of our efforts. It also outlines the key clinical information technology objectives for the coming year in support of the mission and goals of our physician organization.

Adam D. Cheriff, MD
Associate Professor of Clinical Medicine and Healthcare Policy and Research
Chief Medical Information Officer
Chief of Clinical Operations

POIS: Structure and Administration

The information services team that supports the PO is a dynamic group of individuals that combine deep technical expertise with significant domain and institutional knowledge. POIS collaborates closely with other administrative and clinical business units within the Medical College to support Weill Cornell's clinical operations. Our IT staff are also key contributors to the EpicTogether initiative.

```
                        Office of the
                            CMIO

   Informatics        EpicTogether          General
                                          Administration

   Ambulatory            Data              Integration
                       Warehouse

   Operations           Reporting             Data
                                            Dictionary

    Projects            Analytics            Projects

    Revenue                                Development
     Cycle
```
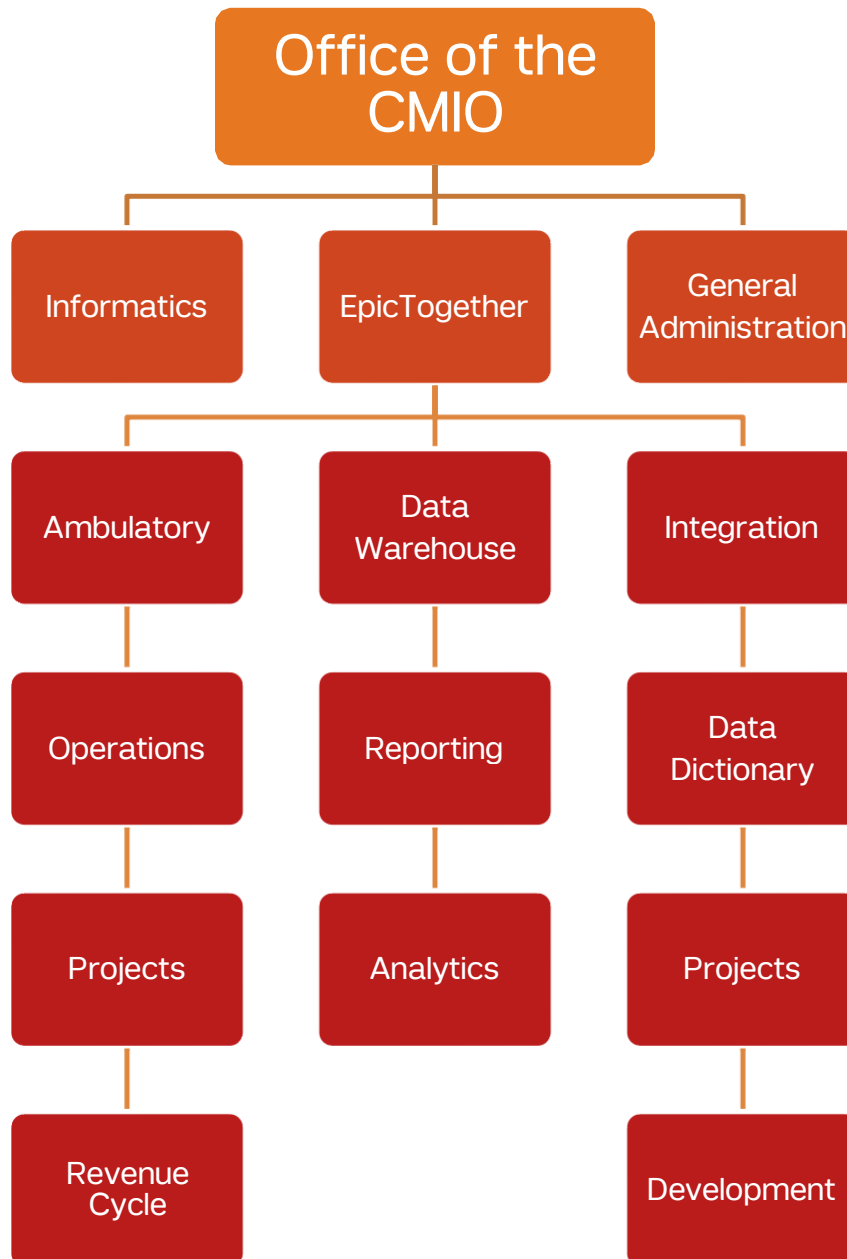
Key Personnel

Travis Gossey, MD
Associate CMIO

Aurelio Gracia
Senior Director, Enterprise Epic

Mark Israel
Director, Systems Integration

John Parry
Director, Cross Application Support

Maggie Qui
Director, Data Warehouse & Analytics

Sameer Malhotra, MD, MA
Medical Director of Informatics

Key Statistical Snapshot: Division Resources
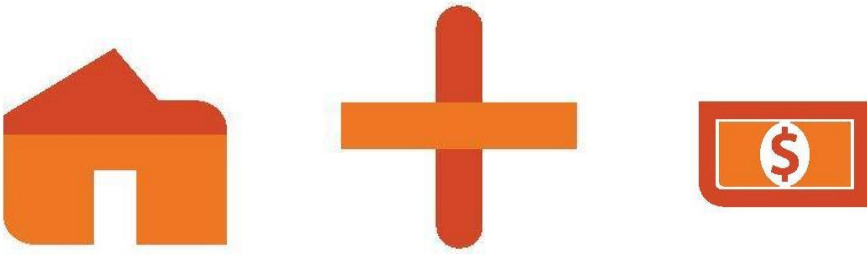
116
Total POIS staff

29
EpicTogether

3
Total current vacancies

19
New Hires

8
Departed staff

$25M
Total '18 – '19 allocated budget

$8.3M
Total revenue and recoveries (expected)

Annual staff attrition rate

6.9%

23
Total ITS FTEs funded by Physician **organization**

Executive Summary: FY2019

Each year, the Information Services division prioritizes its efforts to improve operational efficiency and support the strategic objectives of the Weill Cornell Physician Organization. The following executive summary highlights the key accomplishments for each objective and outlines the goals for the current fiscal year.

Goal Assessment Key: ✓ **Completed goal**
± **Partially completed goal**

Weill Cornell Medicine
Physician Organization

PO Information Services: Goals and Objectives

Objective 1: Build and implement the shared enterprise Epic system (EpicTogether)

The EpicTogether project will result in a shared enterprise EHR for Weill Cornell, Columbia, and New York Presbyterian. With a guiding principle of putting patients first, the EpicTogether project aims to standardize care processes and improve system integration.

Fiscal 2019 Goal Assessment:

- ✓ Migrate existing production Epic system to Epic hosting services which includes full disaster recovery resiliency
- ± Complete system tri-institutional system build for all enterprise Epic modules
- ✓ Devise training plan for all institutional roles
- ✓ Standardize vendors and test systems across the enterprise (including interfaces) for all third party systems

Fiscal 2020 Goals:

- Complete Weill Cornell enterprise Epic training curriculum
- Complete all enterprise Epic procedure master-file changes to support new order-entry and charge capture work-flows
- Complete all go-live ready assessments for West campus go-live
- Successful West Campus go-live event with minimal disruption to clinical and revenue cycle operations

Objective 2: Use information technology to promote Weill Cornell Physician Organization growth and automate point-of-care operations

A primary activity of POIS is to deploy systems to support PO growth and to continually optimize our systems to increase efficiency. There will be ongoing focus on automation of processes to achieve better cost effectiveness.

Key 2019 Goal Assessment:

- ✓ Deploy virtual visit capability via Epic for all interested clinical departments
- ✓ Provide IT support for key clinical expansion initiatives including HSS at NYP and the Primary Care joint venture
- ± Fully implement integrated electronic prior authorization for prescriptions for all clinical departments
- ± Implement robotic process automation for labor-intensive tasks related provider-payer interactions, including eligibility, pre-authorization, and claim status follow-up

Fiscal 2020 Goals:

- Expand e-visits via Weill Cornell Connect for additional clinical conditions and symptoms
- Expand e-consults for all interested specialties
- Deploy kiosk and tablet patient check-in functions (Epic Welcome) in all new Primary Care locations
- Support process improvement efforts in the central PO Business Office including AR work queue re-design and AR follow-up automation

Key Statistical Snapshot: System Activity

Annual Trend | FY 2019 Figures

0.6% ↑
60,156

Support tickets closed

8.4% ↓
58.7%

Cases resolved within
one business day

21.4% ↓
5,259

Epic development/
configuration items
migrated to production

3,161
28.5% ↑

Epic Ambulatory
users trained

1,930
22.5% ↓

Epic PM
users trained

9,280
4.3% ↑

Total Active Epic users
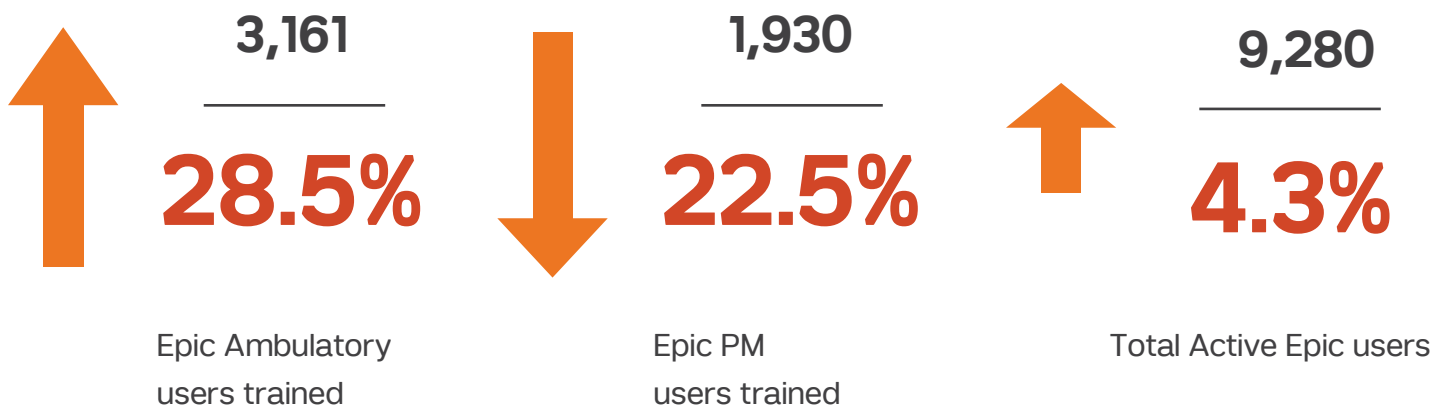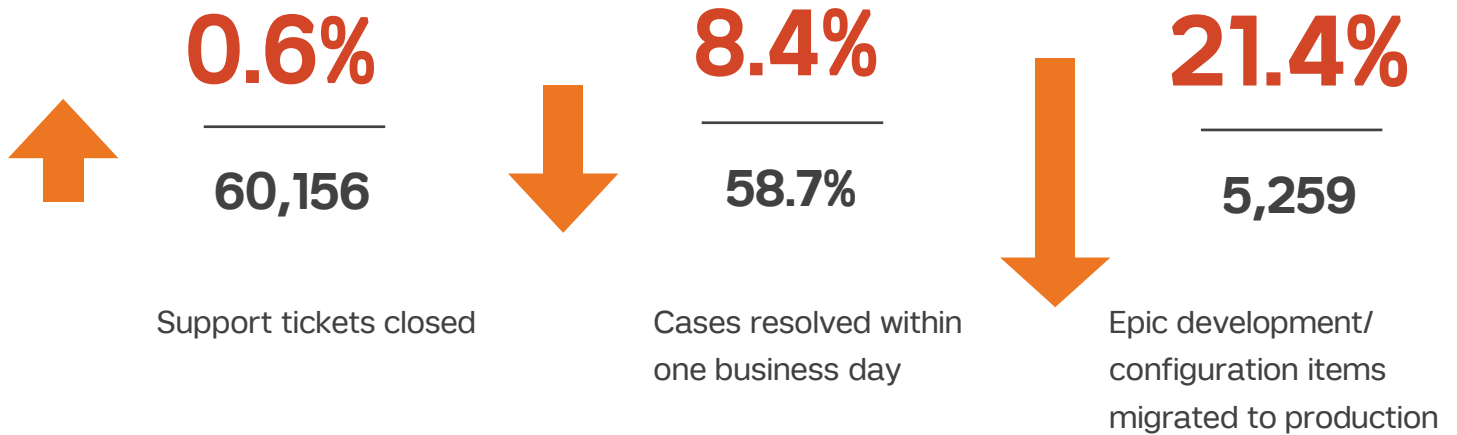
Electronic Clinical Transactions

Metric	FY 2019	FY 2018
Prescriptions transmitted electronically:	1,358,363	,734
Electronic pharmacy benefit queries:	2,515,412	2,48 0,955
Real-time insurance eligibility queries:	2,162,129	,953
Electronic lab orders:	1,730,809	1,462,203
Electronic radiology orders:	202,181	166,551

PO Information Services: Goals and Objectives

Objective 3: Improve patient access and engagement

Improving patient access and overall patient satisfaction remains a top priory for the physician organization. Information technology is a key tool to improve our service accessibility and patient self-service functions.

Fiscal 2019 Goal Assessment

✓ Improve physician search and clinical directory within weillcornell.org and the WCM mobile application

✓ Pilot of virtual assistant technology within weillcornell.org to assist with common service requests

✓ Improve online scheduling user interface, expand visit type options, and promote provider adoption in all clinical departments

✓ Deploy Fastpass capabilities for all clinical departments to fully automate appointment wait list functions

Fiscal 2020 Goals:

- Re-design the clinical services directory within WeillCornell.org

- Improve the online-appointment interface to support additional visit-types, including on-demand urgent care tele-access visits

- Add Find-a-Physician and open scheduling functionality into the WCM-branded mobile application

- Re-design patient check-in and practice waiting room experience using Epic's Welcome platform

Objective 4: Enhance support for population health and value-based care via decision support and increased system interoperability

The shift to value-based reimbursement continues with the support of several critical IT projects focused on improving decision support and care management tools.

Fiscal 2019 Goal Assessment

✓ Re-configure chronic medication dispense quantities in the EHR to promote better adherence and reduce refill requests

✓ Improve quality metric performance by importing a subset of claims data into the EHR to satisfy gaps in preventative care

± Integrate Epic with Healthix, New York's Health Information Exchange

± Collaborate with United Health Care on several demonstrations to improve interoperability with emphasis on improved exchange of clinical and claims data and more efficient prior authorization work-flows

Fiscal 2020 Goals:

- Implement problem-based charting to improve clinical documentation

- Improve pharmacy formulary decision support and prior authorization work-flows at the point of care

- Complete full Healthix integration with the enterprise Epic system

- Implement new tools for care managers that track social determinants of health

Key Statistical Snapshot: Patient Digital Engagement

Google Analytics: weillcornell.org traffic

FY 2019	Metric	FY 2018
3,706,527	Total Sessions	3,250,368
2,042,297	Total Visitors	1,739,981
7,517,694	Total Page Views	6,610,092
10,155	Average Visits Per Day	8,905
5.23 %	International Visits	4.51 %

Patient Portal Utilization

Metric	FY 2019	FY 2018
Total patients enrolled in Weill Cornell Connect:	347,728	289,561
Average monthly enrollment of new WCC patients:	7,272	6,491
Total online appointments made:	60,873	60,767
Expedited Fastpass Appointments offered	18,032 (1,335 accepted)	7,042
Total appointment e-check-ins	65,175	53,257

Key Statistical Snapshot:
Clinical Information Exchange

FY 2019		Document Types	FY 2018	
Received	**Sent**		**Received**	**Sent**
815,866	1,338,911	Clinical Summary	620,217	821,858
274,022	110,100	Continuity of Care Document	34,282	5,309
1,195,856	1,393,009	Encounter Summary	913,947	1,246,963
808,412	1,346,985	Lab Results	611,258	818,006
807,042	1,337,713	Other Results	611,361	818,652
6,905	413	Referral Summary	856	419

Interoperability Exchange Statistics

Standards-based Exchange of Full Patient Records

Care Everywhere

PEERS: Ambulatory Only | **DATA:** 12 months ending July 2019

Patient Records Exchanged

You've exchanged patient records with organizations spanning

50 STATES

Darker shading indicates higher exchange volume
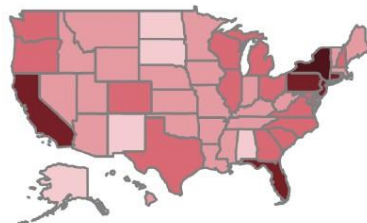
Exchanges in 2019	**1,187,899**
Exchanges in 2018	**2,010,699**
Since Care Everywhere Go-Live in 2012	**4,783,216**

Hospitals Exchanged with	**1,824**
EDs Exchanged with	**1,702**
Clinics Exchanged with	**41,187**

PO Information Services: Goals and Objectives

Objective 5: Develop analytic tools and models to support data-driven decision-making

Given the competitive pressures within our health care environment, actionable data will be necessary to support growth and process improvement efforts.

Fiscal 2019 Goal Assessment

- ✓ Publish new Inside Access KPIs to better facilitate process improvement in service accessibility, scheduling efficiency, and customer service

- ± Create an executive dashboard to guide strategic planning with emphasis on economic value of new patients, payer attribution, and malpractice exposure

- ✓ Add an Inside Practice section to the balanced scorecard to track care process measures

- ± Create additional claims-based cost and utilization dashboard for all major commercial payers within Epic's Healthy Planet module

Fiscal 2020 Goals:

- Publish new Tableau-based executive dashboard to manage access, productivity, revenue cycle management, and digital engagement

- Pilot new analytic platforms that highlight care variation and opportunity for episodic care optimization

- Enhance referral intelligence analytic tools

- Develop new web analytic tools for tracking activity and searches within WCM web sites

*Objective 6: Enhance faculty and staff well-being by improving EHR work-flow and efficiency

Our faculty and staff are being asked to work harder than ever. To prevent burn-out and to increase satisfaction, EHR use should become less burdensome and time-consuming.

Fiscal 2019 Goal Assessment

*New Goal

Fiscal 2020 Goals:

- Review results of WCM crowd-sourcing survey and develop plans/projects to remediate identified areas of clinician frustration

- Implement a new (M*Modal) integrated speech-to-text system into Epic

- Re-design and standardize order-entry functions to create more consistency and reduce data entry

- Implement specialty-specific clinical questionnaires that can be completed by patients in the portal, eliminating data entry and/or abstraction

Appendix:

The Information Services strives to be maximally productive in order to execute on hundreds of projects each year. The following appendix is a detailed inventory of the projects completed in the last fiscal year.

EHR and Practice Management System:
Accomplishments

The Electronic Health Record and Practice Management System (Epic) are the key work-flow engines for all of our clinical practices. These systems automate virtually every aspect of the patient-provider interaction including patient registration and scheduling, visit documentation, order and review of diagnostic tests and procedures, referrals and provider communication and revenue cycle management.

Enterprise Epic (EpicTogether)

- West campus training curriculum finalized and end-user enrollment initiated

- System cut-over and data extraction plans created

- New document management system integrated into Epic (OnBase)

- New speech-to-text system integrated into Epic mobile platform (M*Modal)

- 16,442 Orion system build tasks completed

- 176 standardized order sets built and tested

- 429 oncology protocols built and tested

- 14,762 devices deployed for West campus go-live

- 28,068 charges tested

- 19,526 mapped records tested

- 701 application testing scripts completed

- 303 reports tested

- 13 integrated test scripts completed

Ambulatory Epic Operations

A total of 188 projects were completed

25 New Epic Implementations

Project highlights: HSS at NYP Orthopedic Program, Dr. Savard implementation Primary Care (LIC); Pediatric Pain Management at HT3; Qlinic implementation; Shield Specialty Pharmacy; MyChart tickler e-mail to 1st-time patients; Telemedicine implementations at Primary Care, Integrative Health, Urology, Pain Management, ENT, CT Surgery, Rehab Medicine, Peds Cardiology, Peds Endocrinology, Peds Allergy

61 Practice Optimizations

Project highlights: E-visits for Primary Care; E-consults with GI Medicine; Order Class/Resulting Agency Clean-up; Happy Together (Care Everywhere in Chart Review) implementation; EPCS Duo changeover; 25 Epic department move or expansion projects

25 Practice Operations/Management Projects

Project highlights: Fast Pass implementation at Neurological Surgery, Weight Center (Endocrine); New Notice of Privacy Practices implementation (Epic Enterprise); Welcome implementation at Primary Care

62 Revenue Cycle Projects

Project highlights: Reduction in paper claims and improved efficiency with electronic secondary claims; Telemedicine projects, including co-pay and grant billing process implementations; Procedure master-file updates for enterprise Epic billing

3 MACRA/MIPS Related Projects

Project highlights 2018 MACRA attestation; 2019 Proposed Rule review; 2019 Final Rule review

12 Online Scheduling/Portal Projects

Project highlights Direct scheduling for Peds Urology, Peds Surgery, Liver Transplant, Burn Surgery, Ophthalmology, Trauma/Vascular Surgery, Pediatrics, Primary Care, WCINYP e-Check in questionnaires

92 system maintenance updates/patches

System Integration: Accomplishments

Our systems only achieve their maximum potential when they are connected via seamless information flow. The Integration Team implements and supports hundreds of interfaces between a myriad of institutional systems. The EHR must send and receive a wide variety of clinical and administrative data in order to support workflow. As health information exchange standards have matured, we have achieved more sophisticated integration with our partners. The latest integration projects have begun to make use of new modern APIs and web services for data exchange.

Interfaces

10 Newly Implemented Clinical Interfaces

- CoPath pathology & Muse EKG result interfaces for West Campus to Epic

- Provation procedural documentation result interface to Epic

- PaceArt cardiology diagnostic results interface to Epic

- Patient demographics and research protocol information interface between Forte Oncore and Epic

- Patient clinical data available via FHIR integration with REDCap electronic data capture system

- Genetic testing order and result interface between SEMA4 and Epic

12 Newly Implemented Practice Management Interfaces

- Patient demographics and charge interfaces between WCM's Epic and Hospital for Special Surgery's Epic

- Interfaces to support the OnBase Document Management System implementation

- Queens Campus Mosaiq radiation oncology system charge interface to Epic

- Real-time eligibility query and response interface between Experian Premium clearing house and Epic

- Bi-direction patient merge messages between Epic and MatchMetrix master patient index

27 Operational/Development Enhancements

- Upgrade of Corepoint Integration Engine to version 7.0

- Transition from local SQL databases to remote SQL databases with always on high availability for Corepoint Integration Engine

- Testing and upgrading of all integrations as part of the move to a hosted Epic environment

- 7 projects/tasks related to operations and optimizations of the real-time eligibility interface (RTE)

- 11 projects/tasks related to general operations including ongoing roll-out of electronic lab orders interface, conversion and new implementation of inpatient charge-capture super-bills

Accomplishments: Data Dictionaries, Data Quality and Content Management

Data Dictionary (TruData)

Maintained and sustained mappings and data dynamics for 20+ diagnostic resulting agencies:

- Added 5,018 new procedures; committed 3,080 new local mappings

- Added 38,289 new result components; committed 11,009 LOINC assignments

- Maintained most recent controlled vocabularies – LOINC, SNOMED, CPT/HCPSC/CDT, RXNORM, NDC, NIH value set

- Added new data sources:
  - National Health Safety Network (NHSN)
  - SEMA4 Genetics Lab

- Expanded gene marker disease-based classification in results hierarchy, covering ~1,550 concepts

- Expanded results hierarchy to 246,255 nodes: 68,936 conceptual nodes, covering 61,687 LOINC nodes, and 119,898 local result components, 50,943 local procedures

- Expanded SNOMED assignments to 15,503 for local system entity Organisms

- Consolidated cross-campus Laboratory and Radiology compendiums for Epic Enterprise

- Converted the Epic-Quest compendium (orders and results) to Quest National Standard

- Revamped Epic's Lab result component model atomically to allow for trending/grouping flexibility and extensibility

- Enhanced web crawlers to address changing reference lab website layout designs

- Enhanced engine to download and maintain CMS vaccination and related content to support Epic's immunization content

Provider Management and Credentialing

- Added 69,923 new provider records into the Master Provider Index: 34,124 Epic, 35,182 NPI, 297 Intellicred, 320 Pagoda

- 22,077 new providers incorporated into Epic

- Expanded Epic provider mappings to include Columbia Doctors/Providers

- Developed new MPI client application with weighted algorithms to perform provider matching and merging/splitting across disparate data sources

- Enhanced extension for Webview to process new provider requests with validation directly into the credentialing system

Master Files/Dictionary Support and Maintenance

- Performed aspects of master file configuration, maintenance, and modeling to support and spearhead various Epic Enterprise module builds

- Completed system-wide conversion of Order Class-Resulting Agency model for future state

- Completed system-wide conversion of Orderable, Performable, and Chargeable paradigm

- Maintained reference terminologies (CPT/HCPCS/CCD/ICD/CVX/MVX/SNOMED/Medispan) critical to Epic functionalities and decision support

Data Quality

- 3,544 ServiceNow cases closed by the Data Quality Team.
- Reduced West campus potential duplicate patients queue from 47K to zero.

Web Presence and Portal: Accomplishments

As is the case with most other sectors, consumers look to the web to access health information and services. POIS maintains our web-based directory of clinical services and physician profile system. Hundreds of thousands of patients have enrolled in Weill Cornell Connect. Our patients are accessing personalized clinical information and self-service tools that allow for appointment scheduling, secure messaging, referral and prescription requests, and bill payment.

weillcornell.org

- Implemented online scheduling functionality on Find A Physician and physician profiles that allows new patients to view and select available time slots to book an appointment directly online

- Deployed a beta Virtual Assistant/Chatbot to provide patients automated assistance for finding physicians and navigating self-service troubleshooting tools for Weill Cornell Connect

- Redesigned physician profiles to accommodate online scheduling functionality

- Updated the Find a Physician user interface to include:

  - Unified search bar entry with auto-suggest results for physician name, conditions and/or treatments
  - Search by geolocation (zip code) with sorting search results by distance
  - Sort search results by availability
  - Select amount of physician results to display
  - Overall new layout

- Streamlined "Contact Us" page to redirect inquiries from Marketing to correct PO offices

- Updated website to be compliant with Cornell University's web accessibility standards from 63% to 88% compliance so site visitors with disabilities can successfully consume all web content

- Cleaned up physician profiles' biographies and personal statements to ensure consistent display

Mobile App Development

- Integrated "Sign Up" tool for new patients
- Integrated promotional page to redirect current WCM patients from Epic's MyChart app to WCM's branded app
- Enabled feature for Video Visit functionality
- Enabled eCheck-in email tickler re-direct to app
- Prototyped integrated Find A Physician search and provider profile functionality

Weill Cornell Connect Patient Portal

- Fastpass appointment waitlist automation functionality was expanded throughout the Physician Organization

- "MyChart Central" functionality was enabled that allows patients to link portal accounts from multiple healthcare providers

- Scanned documents can now be released to patients through Weill Cornell Connect

Web Content Production

- 329 patient care events posted
- 220 new physician profiles created
- 85 new condition/treatment pages published
- 47 news articles posted
- 22 new practice location profile pages
- Five department websites migrated to Weillcornell.org

Analytics, Quality and Decision Support:
Accomplishments

The majority of our core IT systems have been implemented and are being used effectively to capture vast amounts of data. We now need to effectively use our data to deliver the highest quality care in the most cost effective manner. Clinical data from the EHR is a critical resource for ongoing scientific discovery. The Reporting Team manages our data warehouses and business intelligence tools.

Enterprise Epic (EpicTogether)

- Completed future state Epic analytics architecture design

- Conducted 77 report content design sessions

- Completed 2,671 reports/dashboards and 135 extracts cross 32 Epic application modules

- Implemented 22 data models for Slicer Dicer

- Implemented 29 new registries within EHR

- Developed downstream Epic data transfer process to manage daily ETL for independent WCM, Columbia, and NYP DataMarts

Analytics Operations

End-user Training and Support

- Trained 48 new Cognos users and 88 super-users (337 active users)

- Trained 45 Epic Radar: CRM Dashboards

- Trained 30 end users on Epic reporting workbench

- 23 end users attended custom one-on-one Reporting Labs

- Conducted 7 training webinars with 156 participants

Data Warehousing

- Created customized Epic clinical data extracts for all major commercial payers to meet supplement data requirements for pay-for-performance programs

- Extracted Epic data for ACO quality metric performance attestation

- Provided historical prescription data and ongoing data extracts to Shields related to specialty pharmacy project

- Completed Epic-hosted server migration, testing, and enhanced security setup for non-PRD and PRD Clarity and Caboodle environments. Setup and sync of locally-hosted Clarity and Caboodle replication servers for business continuity

Research Reporting

- Delivered 39 data extracts/reports to support clinical research projects

Business Intelligence Tools: Dashboards and Reports

Clinical Care Delivery:

- Implemented Cost and Utilization Dashboard for CMS & Aetna which uses claim data to highlight care variation

- Implemented MACRA/MU3 Radar Dashboard and MIPS Scorecard to track performance on key CMS incentive programs

- Implemented practice efficiency dashboard to track eCompetency and care retention

- Setup order tracking / evaluation processes to monitor enterprise order-entry configuration changes

- Completed QPS project of tracking details related to opioid prescribing, and trending over time, for all providers

- Created several self-service medication recall reports

- Tracked usage and reimbursement related to telehealth/telemedicine/video visits

- Created 171 additional custom departmental/ divisional clinical and practice operations reports

- Imported a subset of CMS claims into the EHR to satisfy gaps in preventative care

- Flagged payer attributed patients and providers within EHR for CMS and major commercial payers

Practice Management Reporting:

- Developed 1 new Cognos cube with an additional 30 access management metrics

- Developed 2 new metrics in existing Cognos cubes

- 2,600 active patient access or revenue cycle based reports are live

- 1,247 reports are automated and scheduled

- 24,312 dashboard and report files are generated for the clinical departments and the PO via 10 dashboards/snapshots templates

- Developed an accounts receivable follow up scoring staff productivity reports to monitor staff's efficiency of working the accounts receivable

- Developed a charge review staff productivity reports to monitor staffs resolution of charge review rules

- Developed an Experian underpayment scoring report to monitor staff's efficiency in following up on insurance underpaid claims

- Developed explicit referrals monitoring report

- Developed reports to determine the value of new and established patients to the medical colleges practices

- Developed reports to monitor the success of provider's schedule expansion efforts (extended hours)

- Designed 90 Business Objects custom reports for routine delivery to department end users

- Created over 900 Clarity SQL custom/Ad-Hoc reports to satisfy end user requests

Clinical Decision Support (CDS) and Population Management Tools

- Optimized decision support tools for a variety of quality and safety measures to ensure standardization with enterprise Epic build

- Optimized existing Health Maintenance rules for preventative health to ensure standardization with the enterprise Epic build

- Worked with the EpicTogether team to design the new Care Management Plan function for the enterprise Epic build

- Deployed imaging decision support rules for head imaging and updated content behind a variety of imaging rules to keep up with latest guidelines for shoulder, lumbar spine imaging

- Tools and point of care decision support provided for clinicians prescribing opioid medications to address prescription safety and appropriateness

- In collaboration with the Department of Radiology, created appropriateness use criteria for head, shoulder, hip and neck imaging that will be deployed internally for imaging decision support and made publicly available for use by medical centers across the nation

- Added tools in Weill Cornell Connect to allow patients to consent to being approached for research studies

Academic Productivity: Accomplishments

At Weill Cornell, we do not make a distinction between information technology and informatics. Three physician informaticians lead the information services division. In addition to rendering clinical care, the physicians contribute to the research and education missions of the Medical College.

1. Policy and Extramural roles

- CMIO serves on United Health Care's Healthcare Technology Advisory Council (HTAC)

- Weill Cornell is one of four organizations in the country selected for the Sync4Genes Phase II Pilot study sponsored the National Institute of Health (NIH) and Office of the National Coordinator (ONC)

- Medical Director is the Co-lead for Weill Cornell Medicine's QPLE (Qualified Provider Led Entity), designated to implement Appropriateness use Criteria for advanced imaging decisions

- Medical Director serves on the steering board for Genetics and Genomics Integration and development for Epic Systems Corporation

- aCMIO serves on SOGI and Mobile Apps "Brain Trusts" for Epic as well as external Physicians' Advisory Council board

2. POIS Faculty Policy and Extramural roles, Co-authorships, and Presentations

- Hl7 Connectathon participant for FHIR Genomics at the Hl7 working group meeting, San Antonio

- Invited panelist: Sync for Genes: *Bringing Genomics to the Point of Care*, Academy of Health- Health Datapalooza, Washington DC

- Invited panelist: Clarify Health Executive Leadership Forum, *Getting to Action – Engaging Clinicians Through Analytics*, San Francisco

- New York Academy of Medicine presentation about nudges to help clinicians order CDC recommended amounts of opioids

- *Comparative Effectiveness of Bariatric Procedures for Weight Loss and Safety: A PCORnet Cohort Study*. Annals of Internal Medicine Dec 2018. Co-author: Sameer Malhotra

- *Integrity of Clinical Information in Computerized Order Requisitions for Diagnostic Imaging.* J Am Med Inform Assoc. Dec 2018. Co-author: Sameer Malhotra

- *Early Adopters of Patient-Generated Health Data Upload in an Electronic Patient Portal.* Applied Clinical Informatics, February 2019, J. Travis Gossey, senior author

3. Ongoing Informatics Faculty Research Projects

- Key Personnel for NYC Consortium of Precision Medicine Initiative: All of US

- Optimization of Order Sets in the Electronic Health Record System (In collaboration with Dept. Healthcare Policy and Research)

- Imaging Decision Support research-multi- institutional analysis of clinician imaging ordering behavior associated with decision support systems (In collaboration Brigham and Women's Hospital)

- Comparative Effectiveness of Bariatric Procedures among Adolescents: The PCORnet Bariatric Study

4. Education/Teaching

- Faculty and staff participated in Weill Cornell HIT Certificate Program and Masters program curriculum

- Our faculty members are mentoring students for Masters level theses on clinical informatics projects

- One of our faculty members is the Course Director for the "Clinical Informatics" course that is part of the curriculum of the Masters in Health Informatics program at Weill Cornell Medicine

- One of our faculty members is the Course Director for the "Health Informatics" course that is part of the Executive MBA program curriculum at Johnson's School of Management and Weill Cornell Medicine, Cornell University

Weill Cornell Medicine
Physician Organization

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