

COVID-19 Response Actions and Recommendations

UW Medicine Information Technology Services

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Introduction

UW Medicine IT Services is sharing COVID-19 actions and lessons learned from Seattle, Washington to help expedite IT-related preparation at health care organizations.

This article covers the period from the beginning of the COVID 19 epidemic when our hospitals first encountered COVID-19 through March 16, 2020. Updates will be provided as the UW Medicine response continues.

This article will be posted on the [UW Medicine COVID-19 Resource website](#), a clinical protocol sharing site intended to help health care organizations leverage clinical protocols created by UW Medicine.

The following content includes a situation overview, actions taken, and suggested steps you can take now to prepare your organization's IT. The article is organized into three areas: clinical response, technical support, and people management.

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UW Medicine Setting

UW Medicine is a large healthcare organization in the Pacific Northwest with nearly 30,000 personnel. Our organization includes three medical centers with inpatient and outpatient services, neighborhood clinics, the UW School of Medicine, an air ambulance service, and a wide network of practitioners. Combined, we have an annual 64,220 hospital admissions, 1,675,442 clinic visits, 204,634 Emergency Departments Visits, and 1,544 licensed beds. UW Medicine also is a partner in the Seattle Cancer Care Alliance with Fred Hutchinson Cancer Research Center and Seattle Children's.

UW Medicine IT Services is responsible for maintenance of the infrastructure and applications which support these institutions. We are also responsible for the development, implementation, and support of services and applications that are used to further the UW Medicine mission. Our UW Medicine Electronic Health Record (EHR) system landscape is complex with a unified Epic platform expected later this year. Overall, our services are rendered in a multi-vendor information technology ecosystem.

Command Approach

UW Medicine utilizes the Hospital Incident Command System (HICS) approach for managing response to major incidents. Incident Command Centers were established throughout UW Medicine in response to COVID-19. These are linked by an enterprise level Incident Command Center established to address system wide concerns and provide overall coordination.

IT integration into the HICS structure is done via the UW Medicine IT Services Business Continuity and Disaster Recovery (BCDR) program, which coordinates and leads our IT Services emergency management activities. The Program Manager, IT Emergency Management, (or designee) represents IT Services and reports to the Enterprise HICS Logistics Chief. IT Services clinical informatics team members are also seated in site-based command centers.

To provide rapid, effective support, our IT response is organized around three focus threads: People, EHR/Clinical, and Technology. Each thread has an internal IT leader who is responsible for assigning resources and tracking work to completion.

What you can do now:

- Establish an IT Services emergency response process that integrates well with your overall organizational emergency response process.
- Identify your IT Services emergency response leaders who will participate in the incident response structure.
- Organize your applications and end device teams for rapid, nimble response to urgent change requests.
- Ensure that enough personnel are identified to sustain this effort for a prolonged duration (including 24/7 coverage).
- Create shared email accounts and instructions for enterprise command center personnel.

- Create a restricted intranet site for document coordination among incident command. See more information in the *Dashboard* section below.
- If your organization has a predetermined command room, ensure appropriate equipment, such as laptops, desktop devices, phones, projection equipment, is ready to go. Consider a virtual command center if remote access is more appropriate.

Support of Clinical / EHR Response

The Clinical/EHR Response effort encompasses changes made in support of clinicians and patient care, including changes to our electronic health record systems (EHRs).

Expedited System Changes

Clinical staff need immediate EHR changes to facilitate COVID-19-related documentation. New policies and guidance are issued daily in a pandemic situation. Emerging EHR change requirements included home visits by newly created home assessment teams, precautions for blood processing, new orders, standard phrasing needed for documentation, and new alerts. These requests are being made at all hours of the day and continue to develop over time. For example, we saw in the first two weeks a rapid evolution from targeted travel location questions to more endemic screening needs.

The rapidly evolving patient care landscape necessitated modifications to our emergency change request process, as well as alterations to personnel work schedules. We adjusted our change request process so EHR documentation changes are now evaluated and implemented within hours instead of the next business day – while still maintaining internal controls and our commitment to consistent clinical practices and standardized documentation.

What you can do now:

- Establish a process for keeping your COVID-19 documentation updated 24/7. Include IT representation in your incident command, so they can quickly operationalize new guidance by incorporating it into your EHRs and other systems.
- Monitor EHR vendor sites for emergent system updates.
- Establish a process for expedited change requests to the EHR.
- Plan to have certain IT employees staffed around the clock who can evaluate and implement these change requests.
- Communications to the workforce for these EHR updates are managed through our Crisis Communications Team in the Enterprise Command Center. Be sure you have a process that works for your organization.

Flexible, Centralized Documentation

It is critical that COVID-19 documentation is tightly integrated with prescribed testing criteria and management guidelines. UW Medicine IT practitioner leaders work closely with incident command leadership to incorporate the latest policy and guidance into EHR tools so that the latest recommendations are embedded at the point of care. Changes are made as needed – typically every 24 to 48 hours.

The bulk of COVID-19 work at UW Medicine has been in the ambulatory setting, specifically around screening. Very quickly, the work shifted from the office to remote visits to reduce further spread of

COVID-19 in the community. Key to our ability to quickly adapt COVID-19 documentation requirements was the creation of a single documentation template that is flexible, user friendly, and easy to maintain. By directing all ambulatory practitioners to use this single template, minimal user training is required as tools are updated with new clinical recommendations. Practitioners no longer need to look through multiple documents and systems while speaking with a patient.

The new ambulatory documentation for COVID-19 relies on a simple design using checkboxes and Yes/No questions to assess patient symptoms and risk factors. Complicated note template design was intentionally avoided, even if it looked elegant, for the simplicity of maintenance given IT workforce constraints. Drop down lists were added for maximum flexibility so that necessary documentation components could be added on the fly for telemedicine or telephone visits. For example, if a patient has a scheduled telemedicine visit but their video does not work at the start of the appointment, the practitioners can still document the visit in the same note template without having to click out and find the phone visit documentation.

A single SmartSet (order set) in the Epic EHR was created to facilitate consistent ordering of COVID-19 tests, promote use of CDC-recommended ICD-10 codes for suspected cases, and provide consistent patient instructions. This single order set has been especially useful for helping the nurse triage line, which UW Medicine has greatly expanded over the last two weeks. Using a delegated order protocol, nurses who never previously placed orders in the EHR can use a standardized set of lab orders and diagnoses without having to learn complex EHR workflows.

You can see the UW Medicine COVID-19 SmartSet in Addendum C.

The single SmartSet also helps practitioners complete EHR tasks that are typically handled by other staff members. For example, due to exposure concerns, medical assistants no longer are taking vitals from presumed positive COVID-19 patients. Practitioners meeting the patient via video teleconference from another room in the clinic are now responsible for documenting the patient's Chief Complaint, which is often not intuitive for users who do not otherwise perform this EHR task. By providing pre-set Chief Complaints that match screening symptoms in the order set, this task can now be accomplished in one click without added confusion.

What you can do now:

- Implement anticipated orders and all condition-specific documentation to support COVID-19. This includes new orders, standardized text, tests, and pop-up alerts/precautions.
- Keep your workflows and orders simple – they will be updated frequently, and smart logic may complicate maintenance in a quickly-changing situation.
- Establish a centralized set of ordering and documentation tools – plan to update them quickly as conditions change.
- Ensure your hospital's Incident Command leadership is communicating all changes in guidelines early so that EHR tools can be updated swiftly.
- Establish rules/alerts for presumptive and positive screenings for clinical staff and patients.

Crisis Impact on Electronic System Stability

System stability is critical during the COVID-19 response. IT Services leadership are continually evaluating the timing for applying patches or fixes.

The COVID-19 level of effort also meant reprioritizing other critical IT work, especially as the situation is now moving from days to weeks.

What you can do now:

- Establish a process and determine key decision makers for assessing COVID-19 IT freeze/changes.
- Establish a nimble, continuing process for prioritizing IT projects amid supporting an emergency response.

COVID-19 Lab Orders

The first step UW Medicine took when COVID-19 reached the US was creating closed-loop ordering of COVID-19 tests in our EHRs. This was critical to enabling an immediate clinical response.

Your organization may implement in-house laboratory testing for COVID-19, or you may utilize reference laboratory testing. Either way, succinct and unambiguous guidance is crucial to rapid response to the disease and patient management. Practitioners will need guidance about ordering, collecting and resulting, and reliable delivery of test-related information to the EHR.

System Changes

- Prepare COVID-19 test orderable(s) in the EHR, with unambiguous test code names, and provide clear guidance on ordering instructions on laboratory medicine website or hospital intranet. Note that most practitioners will search for the order(s) based on the disease – COVID-19 – rather than the name of the virus (SARS-CoV-2).
- Prepare results formatting and interface with the EHR. Work with pathology and clinical staff to ensure clear messaging in the results report and clinical guidance as appropriate.
- Be involved with any EHR COVID-19 order sets being developed.
- Work on laboratory information system (LIS) interfacing of COVID-19 test results (for both in-house and reference testing). Prepare for the possibility of temporary instruments being added to help with high volumes.

Specimen Collection

- Prepare policy to address specimen collection, with guidance on labeling, safe packaging protocols and transporting of COVID-19 specimens. UW Medicine chose to exclude COVID-19 specimens from pneumatic tube systems that some hospitals use for specimen delivery.
- Anticipate multiple specimen source locations, some of which may not have electronic interfacing for orders or results delivery and create a plan for orders and resulting for those locations.

Metrics and Data Analysis

- Prepare a metrics collection/visualization strategy, such as a dashboard or tracker, in anticipation of providing various health system entities with frequently updated metrics such as total number of tests, number of positives, testing locations, etc.
- In addition to metrics tracking for those external to the lab, prepare a data analysis strategy to be able to track and optimize lab quality performance measures such as turnaround time, and to anticipate logistical bottlenecks in supplies and personnel. It is helpful to understand where in the accessioning, transport, and analytical processes the largest bottlenecks are. More information on data analytic dashboards is in the *Dashboard* section.

Managing Testing Review and Response

UW Medicine was the first in the state to establish a CDC-approved lab for COVID-19 testing. We are currently processing approximately 2,000 tests daily. As we expand testing capabilities – such as opening more drive-through testing clinics – that number is expected to continue growing.

Given the high number of cases in the Seattle area, many community members required testing. However, only a fraction of these individuals are UW Medicine patients. Orders for tests were being placed in multiple settings, including primary care, urgent care and specialty clinics. Given the complicated roster of ordering practitioners, the diffuse responsibility for sharing results of this high-risk test quickly became problematic. Many patients did not provide the name of a primary care physician, or that person was unreachable.

In response, UW Medicine is implementing a centralized approach to results notification. All ambulatory results, regardless of the ordering or authorizing practitioner, will be routed exclusively to a centralized Epic in Basket (EHR inbox) pool staffed by clinicians and other trained professionals. All patients with positive COVID-19 results are being called by a clinically trained staff member for notification while negative results are available on the patient portal. By maintaining a small group of responders, tight messaging can be maintained consistent with changing guidelines

This approach allows UW Medicine to scale quickly to keep up with demand. By bringing all results into a central repository, UW Medicine can better monitor positive result trends and scale staffing based on the volume of results.

If a patient does not pick up a notification phone call, a voicemail is left requesting a call back. To reduce the need for repeat calls on the part of the staff, an autodialer is used for an additional two phone call attempts in the following days requesting a call back. A unique call back number for these COVID-19 results was created to be answered by the UW Medicine Contact Center representatives. Standardized, clinician-developed instructions are provided for representatives to read to the patient and a return call by clinical staff is only arranged if the patient has further questions

Lastly, given the need for social distancing, a virtual phone number was established so that notifying staff members can use a hospital-issued phone number for outgoing calls instead of their personal cell phone number when calling from a private location. This allows even those members who are self-isolated to participate in the notification process.

What you can do now:

- Consider setting up the COVID-19 screening test to not require cosign, saving inbox work. Prepare a delegated policy to cover this.
- Consider approaches to centralized routing of results so that management of positive results can be shared. This avoids the volume of this work becoming overwhelming or patients not being notified.
- Plan for reporting positive COVID-19 results as may be required with state and local health authorities.
- Build a results routing scheme in your EHR to a single inbox pool. Due to our complex ecosystem, UW Medicine IT is manually updating 400 unique result routing schemes based on individual login departments. Specialty-based result routing schemes would have expedited this process.
- Create a standardized process for adding the COVID-19 results to a patient's record that is visible to those authorized to give COVID-19 results to patients.
- Establish a centralized phone number for patients who missed the results to call and speak to someone who can give them their results.
- Provide a way for clinical staff making these calls from home (due to social distancing measures) to mask their personal phone number and show on caller ID as UW Medicine.
- If you do not already have an autodial tool, consider implementing one now. While staff make the first call, we turn responsibility for the second and third call over to the autodial tool.
- Encourage your patients to register for your patient portal. UW Medicine is posting results in the patient portal within an hour of resulting them. This low-cost intervention makes it easy to provide additional patient care information and COVID-19 FAQs.
- Consider notifying patients at the time of testing that they can find their results on the patient portal or they can assume a test is negative if not notified within a certain window of time.

Standard of Care Flexibility

UW Medicine, with CDC support, is preparing for the possibility of a surge of patients that may require changing the inpatient nursing standard of care. IT is working on backup workflows in the EHR that if activated, would show what nurses need to document during a pandemic situation for essential patient care. This preparation is especially critical for nurses who may be brought in from ambulatory care and will not have training or experience with the inpatient EHR.

What you can do now:

- Have your IT nursing representatives' partner with clinical leaders to review current inpatient nursing workflows and identify what can be eliminated in an emergency. Refer to the American Nurses Association 2008 document, ["Adapting Standards of Care Under Extreme Conditions: Guidance for Professionals During Disasters, Pandemics, and Other Extreme Emergencies"](#).
- Prepare emergency pandemic workflows that minimize what nurses need to do or document for each patient.

IT Support in Clinical Areas

Your organization may implement social distancing or other restrictions on access to certain areas of COVID-19 patient care. This may impact typical procedures for IT staff who provide support on site. Your organization will also likely be working at an accelerated pace, which requires more nimble Help Desk support.

What you can do now:

- Prepare policy to address technical support staff entering COVID-19 presumed or positive patient rooms – especially if there are conservation efforts with personal protective equipment.
- Work with your Help Desk personnel to ensure the most expedient solution are available during the COVID-19 response. Issues should be fixed quickly instead of providing staff job aids or instructions to fix issues themselves.
- Implement software allowing helpdesk personnel to securely take remote proxy access of user workstations.
- Prepare your electronic health record training staff & curriculum to train outpatient and procedure staff on ED and inpatient workflows and tools in an expedited manner.

Patient Communication

To minimize the risk of community transmission, UW Medicine quickly implemented a patient self-screening program. At the request of clinical colleagues, IT Services added language to the EHR patient portals asking patients to self-screen. This language included instructions on what to do if they had certain symptoms or had traveled to high-risk areas.

UW Medicine IT Services are supporting a variety of patient outreach components that need IT solutions to address COVID-19. The UW Community Care Line is seeing a significant increase in call volume, surging from around 30 per day to more than 700. The nurses assigned to the Community Care Line were given expedited access to EHR direct messaging to practitioners and clinicians. As the situation evolves, updates are made to the Community Care Line phone tree, routing algorithms, and automated instructions. Banner notifications were added to the UW website and portal, as well as push notification platforms (e.g., text, push portal messages).

In response to high volumes of requests for information to the public and media, IT Services assisted our UW Medicine media and communication colleagues by creating an intranet repository. This enabled sharing consistent messaging with patients and external organizations.

What you can do now:

- Identify appropriate IT points of contact and create a process for emergency content updates to your patient-facing websites, patient portal, automated patient messaging (appointment reminders, etc.), hold waiting messages, and other interaction points for your patients. Be prepared to send email and text notifications to patients, or certain populations of patients. Topics may include instructions on making appointment, testing, where to go for care, etc.
- If your organization offers patients the capability to schedule appointments online, your clinical organization partners may request to add clear guidance with COVID-19 context to that scheduling site or consider temporarily closing the capability. Have solutions ready to deploy.

- Ensure your front desk staff have updated documentation, to include appointment templates and cancellation options. This will allow your organization to track COVID-19 related trends with appointment requests and cancellations, including any financial impacts.
- Working with the appropriate clinicians, establish tools in your EHR for notifying patients of positive results, and next steps.
- Create a repository so information and guidance can be easily accessed by designated personnel when sharing incident response information outside of the organization.
- Create standard messaging for practitioners and clinicians to use when responding to patient questions via the portal.

Dashboards and Key Metrics

Metrics from across the enterprise in one centralized location are critical to our ability to quickly respond to emerging issues. IT Services created a dashboard for incident command leadership that tracked metrics such as number of tests by result and by facility per day, lab turnaround time, number of current and positive pending tests among inpatients, on hand supply counts of personal protective equipment at each facility, etc. Addendum B has the full list of COVID-19 dashboard metrics categories and a screenshot of the incident dashboard as of March 18, 2020.

Automation of the data has been key to sustainability of the effort. IT Services built a table within our data warehouse which provides information on patients tested for COVID-19 from our lab. That is joined to some of our ADT data in order to provide information on whether those patients are currently in one of our hospitals and if so, which units. We also connected to some of our EHR data in our EDW to provide information about outpatient visit/cancellation patterns.

Access to the dashboard via an internal portal is limited to COVID-19 incident command structure staff. The incident command must approve any other requests on an individual basis.

An intranet COVID-19 analytics page was set up with restricted links to a lab dashboard, supply chain dashboard, operational reports, and patient lists.

What you can do now:

- Create a sustainable plan for starting and maintaining COVID-19 dashboard metrics.
- Use data visualization software so decision makers can self-serve with different and multiple views of the data.
- Try to automate data updates as much as possible to limit the chances of disruption from single points of failure (such as a sick employee).
- Make sure departments responsible for providing the data have a point of contact within the incident command structure to reduce duplication of effort.
- Determine who will need access to the dashboard and be ready to quickly manage permissions.

Technical Support

This section covers technical support for our clinicians or business and operations staff outside of the EHR.

Centralized Communication for UW Medicine

Most UW Medicine entities have their own internal websites and distribution mechanisms for communicating with staff. While this preserves the ability to customize messaging for different audiences, the COVID-19 response required clear, consistent, centralized messages to prevent under or over communicating urgent updates to staff.

What you can do now:

- Create an internal website to post the latest guidance. UW Medicine established a COVID-19 resource site with screening and testing algorithms, policy statement library, signs and posters for patients and staff, which includes other COVID-19 response documents.
- Identify the role of IT in sending communication to the workforce. Test dissemination methods to ensure they reach your entire workforce.
- Review communication distribution lists to ensure they accurately reflect the internal, external, partner, and other groups that are critical to your response.

Expanding Services to New Points of Care

IT Services was asked to provide surge equipment and technical support for medical staff providing services at non-traditional points of care. For example, UW Medicine's Harborview Medical Center with a Trauma 1 Center is well prepared for mass casualty situations where multiple patients are treated in hallways. However, a mass respiratory pathogen like COVID-19 is requiring a rapid expansion of IT resources to allow patients to be isolated.

This resulted in more workstations on wheels, laptops, and tablet devices, which allowed practitioners and clinicians to document in the EHR at the point of care in non-traditional areas.

IT Services also provided infrastructure to support mobile testing clinics, such as a drive-through testing site in a parking garage. This meant extending network connectivity and providing systems to support collecting specimens from COVID-19 persons under investigation/presumed positive while they remained in their cars.

UW Medicine is converting some ambulatory clinic space at our hospitals to inpatient COVID-19 assessment areas. This requires the same level of effort of build in the EHR as establishing a new clinic, to prevent internal logic from blocking an inpatient's move to an ambulatory space. The tracking requirements for inpatients are much stricter than in an ambulatory setting and are critical for assessing who may have encountered presumed or confirmed positive patients.

What you can do now:

- Prepare your IT resources to convert clinic and procedure areas into inpatient care areas. Have a build checklist ready to go.

- Expand your hospital's bed structure into clinic spaces in anticipation of using those spaces for COVID-19 triage. Create a rapid network expansion process (e.g., network in a box) to rapidly extend your secure network to novel locations.
- Assess how your organization can be nimble with granting access to systems and sites in emergencies. Start planning now for emergency-level access that allows people to surge and flow between sites in a triage situation.

Telemedicine/Telehealth

UW Medicine has leveraged telemedicine since 2015 with a Virtual Clinic which is staffed by American Well. The volumes have increased tenfold with COVID-19 and represent an important frontline solution for triage. The need to limit exposure of potentially infectious patients and conserve personal protective equipment (PPE) quickly emerged as a critical consideration when facing a situation of indeterminate length and global supply shortages. This situation caused our practitioners to follow two courses of action – screening patients before they came in; or screening them from another room while isolating the patient in a room with telemedicine capabilities.

UW Medicine has a Virtual Clinic and another 150 primary care clinicians already performing telemedicine visits, with plans to privilege and train all UW Medicine primary care clinicians in the coming weeks. Our COVID-19 telemedicine expansion will then focus on clinics who care for vulnerable patients, such as those who are receiving chemotherapy, have had a transplant or have serious cardiac, pulmonary, liver and renal issues. Lastly, UW Medicine will launch a TeleICU service in mid-March, with special targeting of the UWMC-Northwest campus.

Infrastructure

- Ensure your organization has the bandwidth to support increased use of remote video/teleconferencing capabilities, and the ability to monitor connections in real time to resolve any issues.
- Ensure your organization has enough licenses and adequate hardware to expand teleconferencing capability to your clinical and teleworking staff.
- Make video conferencing readily available across the enterprise and ensure cameras are set up on clinical workstations for video visits. UW Medicine has teleconferencing software already installed on all computers, though quick configuration changes are needed before they can be used for telemedicine to be HIPAA compliant (turning on the waiting room function and turning off recording).
- If possible, integrate the teleconferencing capabilities into your EHR, which allows your clinical staff to easily document initial screenings should your patient need escalated care.
- Test the teleconferencing capability at your clinic. UW Medicine found that our security settings closed the EHR after several minutes if the mouse or keyboard were not touched. This meant patients teleconferencing with their doctor in another room suddenly had their session ended when the EHR logged them out. UW Medicine IT Services Security quickly created an emergency policy that extended the inactive window for certain locations to enough time to complete the clinic visit.
- Ensure your clinicians have VPN or similar connectivity, and that your organization has license expansion capacity.

Hardware

- Consider hardware for remote triage and diagnosis. One solution (an ICU triage model) UW Medicine is exploring allows plug-in peripherals such as stethoscopes.
- Consider hardware to allow patient families and friends to remain in contact with inpatients. UW Medicine is exploring secure tablets for video conferencing between patients and their families.

Visits

- Engage compliance in helping with processes to address billing and privacy related concerns.
- Train your practitioners for telehealth visits. If possible, begin the process now of getting them telehealth credentialed. UW Medicine offers this training via eLearning. The module offered contains the same content as that offered by the [Washington Telehealth Collaborative](#). [View the WA Collaborative Health Care Professional Telehealth Training video](#).
- Dr. Angad Singh, a physician who acts as a liaison between physicians and IT staff, created a quick video tutorial after the start of COVID-19 to help his colleagues better understand how to use the telemedicine tools available at UW Medicine.
- UW Medicine IT supports an intranet site for our practitioners with telemedicine training videos, job aids, and other resources. We plan to quickly add videos of practitioners walking other practitioners through the basics of signing up for the system, how to invite the patient, bill for it, and how to use the EHR in conjunction with the teleconferencing tool.
- Determine whether your clinics are set up with a schedulable telehealth visit type that includes phone or video. You will need to determine who schedules these, and whether patients can meet via phone if the patient doesn't have video. UW Medicine increased the number of sites that could utilize phone visits.
- Determine whether visits can be created on the fly or whether scheduling/check-in is required for billing.

Communication

- Communicate to your practitioners that telemedicine must be conducted after training and on secure systems, to stay compliant with regulations regarding patient privacy and state law regarding reimbursement from Medicare and Medicaid.
- Establish consistent methodology for sending connectivity information to patients for telemedicine appointments. UW Medicine is sending information via emails in our patient portal.

Infection Control Procedures for Equipment & Support

- Establish procedures, policies, and responsible parties for more frequent cleaning of equipment at the point of care – keyboards, mice, etc. This applies to the equipment that staff and patients may touch.
- Prepare your IT Help Desk to support increased calls from clinics regarding telemedicine/telehealth.
- For instructor led training, prepare and equip your training staff to clean keyboards, mice and surfaces between classes. (Onboarding staff continues throughout your COVID response.)

Telework – Infrastructure Considerations

This section covers the equipment side of teleworking. The personnel management side of telework is discussed in the next section.

Most UW Medicine personnel work onsite. We also had several hundred contractors flying in each week to support the expansion of our Epic EHR. The response to COVID-19 required quickly shifting several thousand staff and contractors from onsite to telework.

UW Medicine benefits from our access to surge bandwidth capacity via the Pacific Northwest Gigapop, which is managed by University of Washington. This was critical to our ability to increase access of telemedicine and teleworking tools and services. Smaller organizations may need to consider adding bandwidth as a first step to expanding telework capability. As schools cancel in-classroom classes and move to online classes, employees working from home may be faced with either using their home desktop to telework or allow their child to use it for schooling. UW Medicine has ordered laptops for specific telework employees in this situation.

What you can do now:

- Evaluate your external supply pipeline for laptops and other remote work equipment.
- Arrange for disaster-prioritized supply chain agreements for desktop devices including laptops, cameras, microphones, monitors as needed. Make sure your equipment goes to the highest priority areas.
- Ensure your staff have the equipment and connectivity needed to work from home. You may consider an emergency policy that allows personnel to take their monitors and other desk equipment home with them. If so, you may need a process to manage and track the equipment.
- Ensure your staff can remotely access shared drives, secure intranet websites, instant messenger services, and other daily essentials. This may require hosting pop-up training for staff. UW Medicine IT Services created and shared quick reference sheets on accessing the UW Medicine secure VPN, teleconferencing software, hosting video conference meetings, and forwarding office phone calls to mobile phones.
- Add capability/licensing to virtually host large all-staff and townhall meetings.
- Prepare your Help Desk personnel to respond to requests for assistance from employees asking for help on working from personal devices.
- If you plan to have staff help manage community care lines or make other patient-facing calls, ensure they have the equipment, a way to mask their personal phone number, and a way to route calls to them.
- Consider hosting a drill where all non-essential staff work from home. This will help you identify training opportunities or points of failure with connectivity or access.

People Management

This section focuses on the business of taking care of our IT Services personnel.

Telework – Personnel Considerations

Unclear guidance and manager uncertainty regarding oversight of teleworkers can slow efforts to quickly transition a workforce to teleworking in an emergency.

What you can do now:

- Establish the HR policies and procedures needed for telework, including equipment use.
- Ensure your managers are ready to oversee a teleworking workforce. Clearly communicate guidance and policies around telework to your managers. Managers must be prepared to triage telework requests from personnel who may require transitioning to telework in the early stages of the crisis. Make sure they are prepared to manage and stay engaged with a teleworking workforce.
- Clearly communicate expectations to your workforce, to include requirements for multiple points of contact, communication methods and expected response time during working hours.
- Prepare managers to touch base with their staff throughout the day to quickly identify barriers to productivity.

Increasing Medical Staff for Surge Requirements

UW Medicine is preparing for the contingency of an increase in hospitalizations of COVID-19 patients, including the need to expand inpatient facilities and staffing. Our IT training personnel are preparing customized materials to enable UW Medicine to support the need for surge staffing on the front lines of inpatient care (both acute intensive care units).

For example, the training teams are preparing condensed versions of training to help residents, fellows, and attending level MD/ARNP/PAs work within the inpatient EHR on front line tasks such as writing orders, medication reconciliation, admit and discharge. We are exploring moving some of this training from classroom to online.

What you can do now:

- Consider developing job aides and other training materials for RNs to place COVID-19 testing in nursing triage.
- Prepare to surge training of your practitioners for telemedicine.
- Prepare job aides and other materials for ambulatory nursing and other staff who may be temporarily conscripted to help manage inpatient triage, testing results notification, etc.
- Prepare surge training for ambulatory and other practitioners who may work on different EHRs but are asked to help assess inpatients on unfamiliar systems. Training needs may vary from practitioners who have never worked inpatient to those who have done so in the past but need a quick refresher.
- For community-based providers, it may be necessary to coordinate expedited staff privileging in order to utilize them as front line inpatient providers.
- Set aside classroom space now to accommodate these surge training requirements.
- Set up an intranet page for easy-to-access training materials for these surge personnel.

Contact UW Medicine IT Services Emergency Management

For more information on the UW Medicine Information Technology Services COVID-19 support, please contact our Program Manager for IT Services Emergency Management, Stephanie Klainer, at sklainer@uw.edu.

To request an interview with our IT Services leaders, please contact IT Services Communications, Elisha Grange, at egrange@uw.edu.

ADDENDUM A: Ten Ways You Can Prepare Now

These are the top 10 actions you can take now to help your organization prepare for COVID-19 or future infectious diseases emergency scenarios.

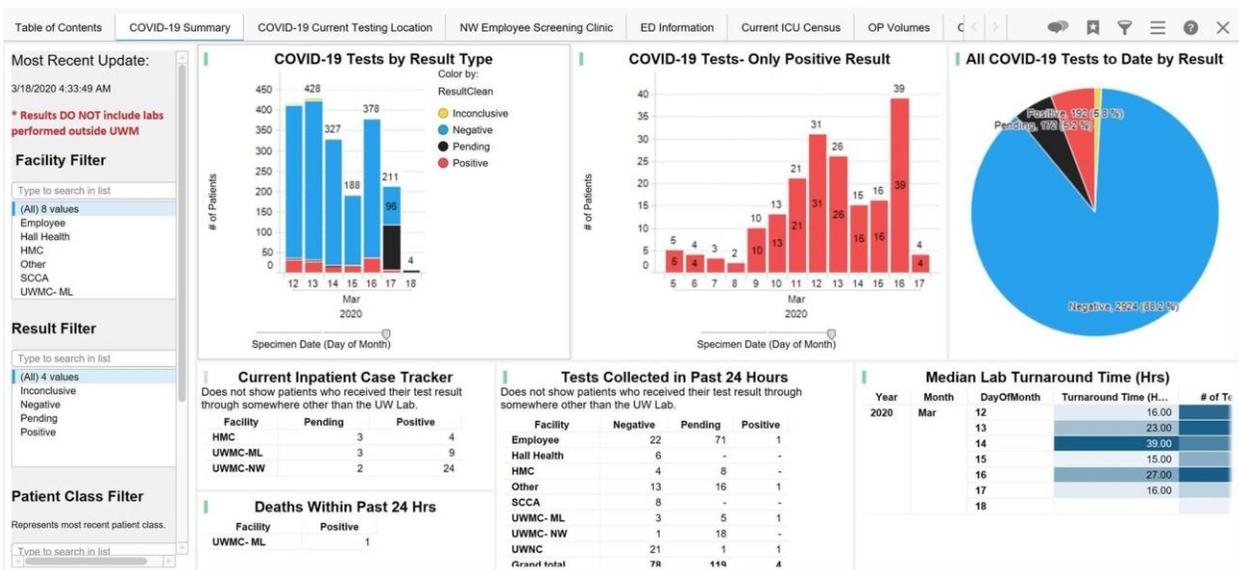
1. Establish your new or evaluate your existing IT response structure. Be sure that points of contact and processes will work for this situation. Plan for the long haul. You will need IT Services to surge support for weeks or months. Ensure you have a deep bench of experts in key areas to sustain the demand.
2. Updates to your electronic health record (EHR) must be evaluated and centrally disseminated as quickly as possible. Your IT personnel must be able to do this around the clock. Ensure that your Information Security team has a rapid process to assess, document, and approve risk decisions and exceptions during the emergency.
3. Quickly prepare multiple sites with telehealth capability. This will allow patients and practitioners to flow between different sites. Begin training your practitioners now.
4. Assess remote user capability, licenses, software, hardware and bandwidth limitations to connect to your internal systems to ensure your systems can handle the influx of users and increased utilization of your network and resources.
5. Assess how your organization can be nimble with granting access to systems and sites in emergencies. Start planning now for emergency-level access that allows people to surge and flow between sites in a triage situation.
6. Make patient screening tools accessible prior to presenting. Priority needs to be on ensuring your patients know how to self-screen.
7. Establish a centralized intranet site for disaster management and communication. This includes an incident command dashboard of automated metrics to help assess the evolving situation.
8. Identify the role of IT in sending communication to the workforce. Test dissemination methods to ensure they reach your entire workforce. Review communication distribution lists to ensure that they accurately reflect the internal, external, partner, and other groups that are critical to your response.
9. Prepare for increased Help Desk support requirements, and ensure your staff are prepared to answer questions and quickly resolve issues with clinicians using new telehealth capabilities, and newly teleworking employees.
10. Plan for large scale remote work. This will require workforce provisioning of equipment and policies and procedures for managing a remote workforce.

ADDENDUM B: COVID-19 Dashboard Screenshot and Metrics

The following metrics are collected by UW Medicine COVID-19 Incident Command.

- # of tests by result and by facility per day
- Lab turnaround time
- # of current positive and pending tests among inpatients
- Current location of patients with positive or pending tests
- On hand supply counts of personal protective equipment at each facility
- # of outpatient visits per day
- # of outpatient no shows per day
- # of outpatient cancellations per day (separated by COVID-related or not)
- # of ED visits per day
- ED Length of stay
- List of test results for patients tested who presented at the ED
- Telehealth visits per day for COVID-related symptoms
- COVID info line calls per day by nurse triage needed or not
- % of calls abandoned and average call speed for calls into COVID info line

Below is a screenshot of the summary screen cap for the primary COVID-19 Incident Command Dashboard at UW Medicine, as of March 18, 2020. Note there are 9 tabs with detailed dashboards under each.



SmartSets

✖ Remove
⏸ Pend
✔ Sign

COVID-19 [Personalize](#) ⌵

Reference Information

Helpful Links

- UW Medicine COVID-19 Site
- WA DOH COVID-19 Site
- UW Telehealth Job Aids

Reason for Visit

Reason for Visit

- Breathing Problem (aka Shortness of Breath)
- Cough
- Fever
- Throat Problem (aka Sore Throat)
- URI

Charting

Charting

- COVID-19 Note (for both Telehealth and non-Telehealth visits)
- COVID-19 Sample Collection Documentation

Orders

Labs

- COVID-19 Coronavirus Qualitative PCR (Normal Status is now being used for ALL visits)
Routine, ** DO NOT send in Tube System **
- Influenza A, B and RSV, Rapid PCR (Strongly consider empiric treatment. To be ordered only if results will change clinical management) (\$\$\$\$)
Routine
- Influenza Assay Rapid, Onsite - UWNC only (Strongly consider empiric treatment. To be ordered only if results will change clinical management)
Routine
- Strep Test Rapid, Onsite (UWNC only)
Routine

Diagnosis

Diagnosis

- Cough [R05]
- Fever, unspecified [R50.9]
- Shortness of breath [R06.02]
- Sore throat [J02.9]

LOS

- ▶ Level of Service Office Visit [Click for more](#)
- ▶ Level of Service Telemedicine (GT modifier | [Click for more](#)
Visit conducted with live, interactive video & audio)
- ▶ Level of Service Telephone (Visit conducted [Click for more](#) with audio only)

Patient Instructions

Patient Instructions

- Patient Instructions for URI and possible COVID-19 testing

Ad-hoc Orders

🔍 Search

You can search for an order by typing in the header of this section.

✖ Remove
⏸ Pend

🔗 Associate
✎ Edit Multiple

👤 Providers
✔ Sign

ADDENDUM C: UW Medicine COVID-19 SmartSet

Thanks to Epic for granting permission to share this screen shot. Please contact Dr. Angad Singh at apsingh@uw.edu for more information as he led the development of this SmartSet.

Angad Singh, MD, Physician Lead for Clinical Informatics, UW Neighborhood Clinics, Physician Lead for EHR Optimization and Support, UW Medicine IT Services, and Clinical Assistant Professor, Department of Family Medicine