## Quick Reference

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University of Washington Medicine IT Services is sharing COVID-19 actions and lessons learned to help expedite IT-related preparation at health care organizations.

This article covers the period from the beginning of the COVID-19 epidemic in Western Washington state from late February through March 9, 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.

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 physicians. 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.

The 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 a Hospital Incident Command System (HICS) 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 BCDR Manger (or designee) represents IT Services and reports to the Enterprise HICS Logistics Chief. IT Services 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 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 months (including 24/7 coverage for a prolonged period).
• 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 Tracking Trends 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 records (EHRs).

Expediting System Changes

To care for COVID 19 patients, clinical staff needed immediate EHR changes to facilitate COVID-19-related documentation. This 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 have seen 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.

It is critical that COVID-19 documentation reference a single set of tools with centralized governance. This allows everyone to have the most correct, updated version.

What you can do now:

• Implement anticipated orders and all condition-specific documentation to support COVID-19. This includes new orders, smart phrases, tests, and pop-up alerts/precautions.
• Monitor EHR vendor sites for emergent system updates.
• Establish a process for expedited change requests to the EHR.
• Establish a centralized set of ordering and documentation tools – plan to update them quickly as conditions change.
• Establish best practice alerts for presumptive and positive screenings for clinical staff and patients.
• Plan to have IT staff staffed around the clock who can evaluate and implement these change requests.
• Communications to the workforce for these EHR updates were managed through our Crisis Communications Team in the Enterprise Command Center. Be sure you have a process that works for your organization.

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.

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.

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 physicians and clinicians. As the situation evolved, updates were 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.
- 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 providers and clinicians to use when responding to patient questions via the portal.

Tracking Trends – 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.

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.

What you can do now:

- Create a sustainable plan for starting and maintaining COVID-19 dashboard metrics. 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 any 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. This resulted in more workstations on wheels, laptops, and tablet devices, which allowed physicians and clinicians to document in the EHR at the point of care in hallways, non-clinical rooms, and other 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 Wi-Fi and providing systems to support collecting specimens from COVID-19 persons under investigation/presumed positive while they remained in their cars.

What you can do now:

- Plan for the role IT will plan in rapidly creating new departments and clinics to manage specialized screening if needed.
- Evaluate your IT capability to expand patient care into surge/non-traditional areas of your organization.
- 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

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 led to 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.

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.
- 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 to enough time to complete the clinic visit.
- Ensure your clinicians have VPN or similar connectivity, and that your organization has license expansion capacity.

Visits

- Train your providers for telehealth visits. If possible, begin the process now of getting them telehealth credentialed.
- 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.

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.
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 surging 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 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.
- 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.
- Prepare your Help Desk personnel to respond to requests for assistance from employees asking for help on working from personal devices.
- 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.

For more information on the UW Medicine Information Technology Services COVID-19 support, please contact our Business Continuity and Disaster Recovery (BCDR) program manager, Stephanie Klainer.
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 providers to flow between different sites. Begin training your providers 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 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