APhA

Operational Approaches for Health-System Pharmacy Practice During the COVID-19 Pandemic

Lessons on Preparing and Adapting Your Health-System Pharmacy in the COVID-19 Crisis

Developed and shared by:

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The novel coronavirus is a highly contagious disease with no consensus-approved treatment guidelines. The global pandemic has led to numerous shortages of resources. Our goal has been to develop and enact strategies to preserve medication safety and quality in a highly disrupted environment. For ongoing continuous improvement, it is critical that medication safety evaluation and medication error reporting continue to be routinely reviewed and that strategies for quality improvement are maintained in each facility. As part of this effort, it is critical to identify unique approaches to ensure uninterrupted patient access to high-quality care and evaluate techniques to protect all health care workers involved in the medication use process.

Limiting staff exposure risk in care areas and promoting social distancing efforts helps to ensure personnel safety. Components of the medication use process may be reviewed by pharmacy leadership to further detect points where modification of operations and clinical practices might be necessary. Collaboration with various health care disciplines and the human resources department permits the discussion and mitigation of challenges, as well as the development of system approaches for interim solutions. The routine assessment of pharmacy workforce productivity and well-being ensures the longevity of department staffing capabilities and high-level service provision, while providing personnel support in a dynamic health care landscape.
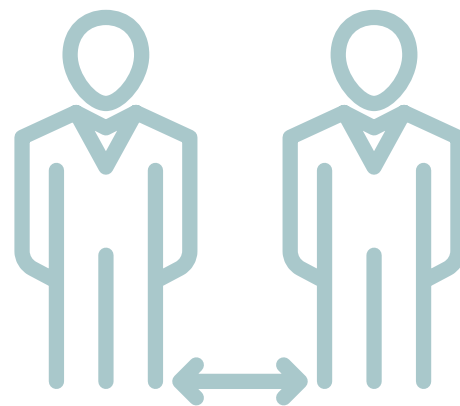
The strategies outlined below are intended to share operational strategies for health systems for the planning and management efforts of coronavirus disease 2019 (COVID-19) and other epidemiological events. The recommendations are derived from the experiences of pharmacy leadership in a multi-hospital health system in Houston, TX, and the surrounding region. The information outlined below from our experience would need to be adapted to your specific pharmacy practice model.
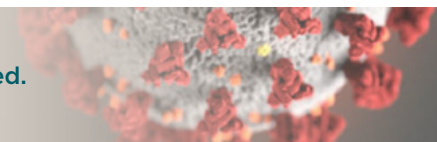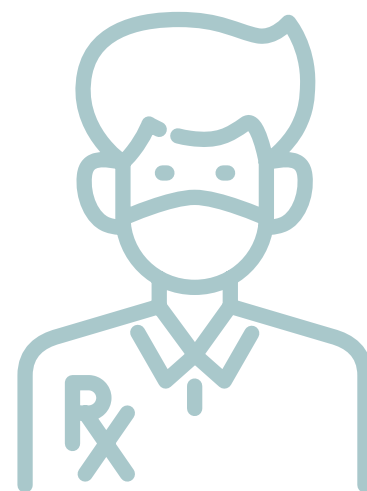
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1. Limit pharmacy staff exposure.

- Determine whether the capability exists to provide care remotely versus onsite. Then define what positions can be scheduled as remote to promote social distancing among the pharmacy staff.

- Develop contingency plans in the event that staff become ill or unable to work.

- Review the operations schedule to construct extended shift rotations, such as 10-hour shifts with 7-day on/off blocks, as well as remote work opportunities, such as medication order verification and data analytics, to limit the extent of potential staff exposure.

- Evaluate the operational workflow to determine what medication delivery changes can be implemented to have the fewest runs to units for the shortest time duration possible, while maintaining and exceeding established service standards.

- Optimize the inventory in the automated dispensing cabinets (ADCs) for the COVID-19 patient unit(s) to help ensure quick access to therapies and to help control the frequency of medication deliveries to units. Prepare for any workflow changes and further inventory optimization in the ADCs, as more unit(s) may be converted to intensive care unit(s).

- Consider the implementation of a medication history/patient education process via telehealth strategies for patients.

- Evaluate the pharmacist role in code blue strategies and how to maintain the crash cart outside of isolation rooms and ensure proper decontamination. Collaboration with representatives of the health care disciplines and the code blue committee will help ensure institutional agreement and standardization of the process.

- Develop a plan for personal protective equipment (PPE) allocation for pharmacy staff— keep good stewardship practices in mind.

- Consider having pharmacy staff participate in patient care coordination rounds on COVID-19 units via teleconference modalities, if in accordance with your organization's care management strategies for pandemic response.

2. Limit health care staff exposure during the medication management process.

- Commercially available spacers are used by patients to better direct respiratory medications into the lungs and minimize the aerosolization of infectious particles. Consider partnerships with local engineering schools or entities where spacers could be produced through innovative approaches during national supply shortages.

  > EnMed, the Engineering and Medicine partnership between Houston Methodist and Texas A&M University College of Medicine and College of Engineering, has released spacer designs for 3D printing that are available to the public at no cost. You may access that link here: https://enmed.tamu.edu/enmed-spacer-diffuser/.

- Your institution may have elected to move infusion pumps outside the room to conserve PPE and limit staff exposure. To ensure medication safety, please consult organizations, such as the Institute for Safe Medication Practices, when developing temporary procedures and guidance for health care staff regarding parenteral therapy administration.

  > Collaborate with your institution's Central Supply to increase the availability of extension set tubing to support the placement of infusion pumps outside of the isolation patient rooms.

- If you employ diabetes management strategies in your critical care areas, such as insulin drip protocols, consider developing modifications specific for COVID-19 or COVID-19–suspected patients eligible to receive less frequent blood glucose monitoring (i.e., every other hour instead of hourly) to reduce staff exposure risk and help conserve PPE.

  > Pilot continuous glucose monitors along with the point-of-care testing where appropriate. There may be an option to help validate less-frequent glucose sticks if both are done to assess accuracy/viability.

3. Provide care for patients with the interdisciplinary team.

- Employ a robust Antimicrobial Stewardship Program Committee with interdisciplinary collaboration. The Antimicrobial Stewardship Program Committee can lead the institution's efforts for enrollment in industry clinical trials and develop research protocols for investigational antimicrobial therapies.

- Implement an interdisciplinary workgroup to create and update a facility-specific COVID-19 treatment algorithm on a regular basis. Given that this is a novel disease state, the emerging evidence is evolving quickly. Consider meeting weekly at minimum.

- Review institution data with the support of a quality analytics team to identify the efficacy and safety outcomes of treatment options for COVID-19 patients.
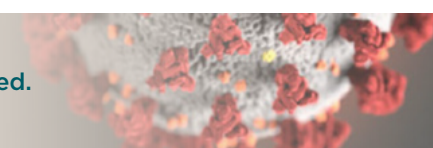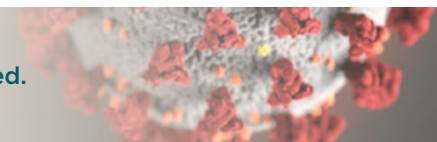
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- Develop an anticoagulation task force to establish facility-specific guidance for COVID-19 patients.

- Create a clinical pharmacist support for after-hours support of COVID-19 patients, if not already in place.

- Cross-train pharmacists to have a larger workforce to deploy to the intensive care unit(s) when needed.

- Develop COVID-19 pharmacy consults through your Pharmacy and Therapeutics Committee that would allow pharmacists to adjust medication doses and order electrolyte supplementation based on medical staff-approved protocols.

- Inventory PCA modules for sedation medications to ensure there is enough supply on hand and investigate options for leasing/buying additional modules if necessary.

4. Manage medication and supply inventory shortages.

- Review the pharmacy's policies and procedures for disaster response for initial guidance.

- Anticipate national demand increases and supply shortages of medications necessary to treat critically ill patients and proactively purchase sufficient inventory for your institution.

- Work with your wholesaler and direct manufacturer contacts to maximize opportunities available for medication acquisition for your institution.

  > Some medication supplies will be distributed via government allocation, requiring contact with your local health care provider preparedness network, regional emergency preparedness advisory council, or your state's Department of Health to acquire access. Work with hospital leadership to identify your institution's representative to these groups, if you have not established this already.

- Assess alternative modes of administration for medications in high demand secondary to the pandemic, and understand the domino effect across demand pathways. For example, the conversion of opioid sedation infusions to oral therapies due to one shortage often creates a new national demand with a resultant second shortage.

- Consolidate medication inventory where feasible, and routinely monitor the days of therapy on hand based upon the utilization rates and product availabilities.

- Utilize the nonsterile compounding pharmacy at your institution, if available, to mitigate medication inventory shortages. Partner with a compounding pharmacy supplier for the purchase of active pharmaceutical ingredients and recipes.
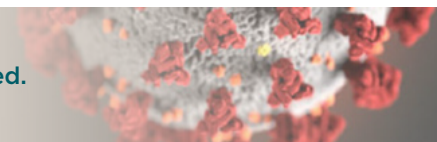
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- Assign the real-time monitoring of drug shortages, COVID-19 recommended therapy changes, and distribution of supplies to an inventory acquisition and management team member. As your institution's treatment algorithm could change frequently, your strategies for purchasing and medication preparation to optimize quantity on hand and minimize waste will also change.

- Monitor regulatory updates, such as through your state's Board of Pharmacy rule changes, Centers of Medicare and Medicaid Services waivers, and state declarations, to consider the utility of the changes to your department's services.

- Reduce shortages of PPE for sterile compounding through the reuse of masks and purchase of washable surgical gowns appropriate for pharmacy cleanroom purposes. Partner with your institution's environmental services department and laundry services for cleaning and replenishment.

  > Guidance issued by the United States Pharmacopoeia on the use of garb and PPE during the COVID-19 pandemic can be found here: https://www.usp.org/sites/default/files/usp/document/about/public-policy/usp-covid19-garb-and-ppe.pdf.

  > Garb and PPE used in the preparation of antineoplastic agents and other hazardous drugs should **not** be reused.

- Consider rescheduling annual competencies for sterile process GroMeds™ and other sterile technique examinations to conserve PPE use—**only** if allowed by your state's Board of Pharmacy.

- Review available literature for microbial surface survival time and a list of Environmental Protection Agency (EPA)-approved disinfectants to develop processes to safely decontaminate or quarantine packaged medications for health care worker protection and supply conservation. The list of EPA-approved disinfectants for COVID-19 is available via this link: https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2.

  > Care and caution must be exercised to ensure that any process for decontamination of medication packaging will not allow for contamination of the enclosed medication. Check all returned medications thoroughly to ensure integrity of the medication is maintained throughout your established process in order to prevent patient harm.
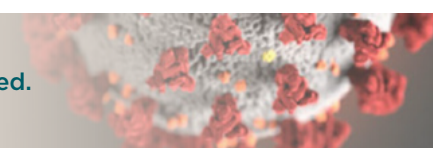
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5. Monitor productivity to meet the needs of the organization and personnel.

- In addition to ensuring patient care needs are met, continue to monitor throughput metrics to ensure the pharmacy department's resource plan is in line with hospital leadership expectations related to units of service.

- Monitor the department(s) productivity indices to determine whether to flex onsite pharmacy staff to correlate to a reduced patient census.

- Monitor workflow metrics to evaluate onsite versus remote staff productivity, and utilize the data to adapt workflow strategies to best meet the department's operational needs both during and after pandemic response.

- Create system pharmacy labor pools to support staffing shortages if needed within a multi-hospital health system, especially if patient volumes become disproportionate between system entities.

- Identify whether the satellite pharmacies will need to temporarily close due to reduced patient census volumes/closed unit(s) or to maintain pharmacy staff safety in areas of high throughput for COVID-19 confirmed or suspected patients. The cross-trained pharmacy staff can be allocated to support the workflow in an area of operational need.

6. Leverage technology to support social distancing efforts and optimize patient care.

- Assess whether employees currently have the necessary resources to work remotely and access the electronic medical record and hospital intranet securely. Collaborate with the information technology (IT) department to obtain remote access privileges for staff as a preparative measure, and consider hospital-provided IT resources (i.e. laptops and docking stations) upon request and availability to facilitate remote work strategies.

- Assess the web conferencing software that is available to the institution, and provide staff with guidance to maximize its use and ensure compliance with the Health Insurance Portability and Accountability Act (HIPAA).

- Leverage pharmacovigilance software or other technology to notify pharmacists of COVID-19 laboratory results in real time.

- Collaborate with an interdisciplinary team to develop COVID-19 order sets or panels to streamline the ordering process of medications, laboratory indices, imaging, and other diagnostics for health care providers.

- Develop best practice advisory/pharmacovigilance alerts to notify health care providers whether a patient is on COVID-19 investigational drug therapy if a medication with suspected COVID-19 treatment potential is preemptively ordered and may conflict with the study protocol.

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- Utilize the electronic medical record to direct discharge prescriptions to a queue for pharmacist review to ensure regulatory compliance with prescription indications and prescribed quantities.

- If your institution has implemented a universal masking policy and provides a departmental stock of disposable surgical masks (e.g., ear-loop masks), consider stocking them within a monitored central location for staff access, particularly if there may be a mandate of masks to ensure staff, patient, and visitor safety. Monitor and replenish the inventory regularly as needed.

- Maximize technology use at the institution to permit rotation opportunities for student pharmacist learners, if not able to maintain onsite rotations in the future.

7. Streamline communication and address personnel well-being to prevent burnout.

- Develop an internal department resource/reference guide to organize the communications relayed to staff and offer accessibility ease for future reference.

- Provide daily or routine communication updating pharmacy staff of any departmental, hospital, and/or health-system changes to facilitate transparency from leadership.

- Conduct virtual staff huddles and town hall meetings with pharmacy staff to provide updates and create an open venue for questions to be asked.

- Create a mechanism for staff to ask questions and receive answers promptly.

- Check in with pharmacy staff regularly to assess well-being and identify resources that would be of benefit to individuals, such as discounted products/programs for health care providers or institution-supported dependent-care services and support groups.

- Consider strategies to extend appreciation to staff to help maintain positive morale.

- Promote a daily mindfulness pause as an opportunity for staff to pause, check in with oneself, and be together with colleagues (while being mindful of social distancing) for restoration and resilience.

- Identify whether sponsorships with local food providers may be possible while maintaining safety to promote social distancing and safe handling of food (i.e., individually wrapped items).