Providing essential clinical pharmacy services during a pandemic: Virtual video rounding and precepting

As the United States began reporting the first positive cases of the novel coronavirus disease 2019 (COVID-19), hospitals across the country began to plan for how to manage this new and unprecedented challenge. Our pharmacy administration team evaluated how to balance the need to provide essential pharmacy services (both operational and clinical), develop telework strategies, and maintain a viable workforce for the duration of the COVID-19 pandemic.

The COVID-19 pandemic resulted in many challenges to essential pharmacy services, which are described in many standards.[1,2] As state and federal bodies issued more guidance, we worked to develop solutions for the challenges presented.[3,4] Our team struggled to determine whether providing remote clinical pharmacy services would create a perception that some services are nonessential to standard patient care. Our plan was to mobilize clinical pharmacists to work remotely from home while maintaining all of their current roles and responsibilities. This plan allowed for improved social distancing and preservation of our workforce should COVID-19 infections occur within the staff as well as providing increased flexibility for childcare. It also provided staff with peace of mind related to potential COVID-19 exposures within the hospital. We ensured that all regulatory and compliance concerns were properly addressed. Temporary rules approved by our state's board of pharmacy allowed pharmacists to verify medication orders from home using the electronic medical record (EMR).

Beyond the regulatory components, ensuring our clinical pharmacy specialists and pharmacy residents had the tools required to provide care was essential to gaining buy-in from appropriate stakeholders. Our physician partners were actively engaged in these discussions. Additionally, we needed to ensure that our resident learners achieved rotation learning objectives and goals in a meaningful way. Louiselle et al[5] previously described numerous challenges and modifications that had to be made to precepting and pharmacy resident learning experiences during the COVID-19 pandemic.

In this report, we will outline our preparation for remote clinical services, the technology utilized, the perspectives of pharmacy preceptors and residents, and barriers encountered. Virtual video rounding took place in our pediatric intensive care unit (PICU) and neonatal intensive care unit (NICU). J.W. Ruby Memorial Hospital, a member of the WVU Medicine System, is a 717-bed academic medical center located in Morgantown, WV. The WVU Medicine Children's Hospital is a 119-bed children's hospital within the academic medical center.

Technology. Virtual rounding and telepharmacy services are heavily reliant on technology to ensure success. Our pharmacy and information technology (IT) teams worked together before beginning telepharmacy services to ensure all necessary software and hardware were in place for both onsite and offsite functionality. All technologies selected for use were vetted to ensure Health Insurance Portability and Accountability Act (HIPAA) compliance.

Pharmacists at our institution were already equipped with laptop computers capable of both audio and video connectivity before the COVID-19 pandemic. Dedicated rounding computers were upgraded with microphones and speakers for audio connectivity and web cameras for video connectivity to facilitate telepharmacy services.

Once all the hardware technology was in place, the IT department granted access to our institution's numerous secure videoconferencing programs for all individuals participating in rounds remotely. Pharmacists and the onsite medical teams were trained on how to launch the secure videoconferencing programs, connect calls, and add additional participants to an active call.

Virtual clinical services. Pharmacists connected to the hospital's network through a virtual private network (VPN) service already in place at the health system. Once connected to the network, the pharmacist launched the chosen secure videoconferencing program and connected virtually to rounds at a time designated by each team. Each team maintained a connection to the secure videoconferencing program for the duration of rounds and kept the computer close enough to the medical provider presenting each patient to allow the pharmacist to hear the daily plan. This also allowed the pharmacist to provide real-time recommendations to the medical team and answer any questions, typically at the end of each patient presentation.

Patient discharge counseling occurred either in person or over the telephone, depending on the patient's location and the type of counseling.

The EMR at our health system also recently added a secure chat feature that allows healthcare providers to securely send messages regarding nonurgent patient care issues with increased efficiency compared to previous

in-basket functionality. Secure chat was helpful if the team was unable to hear the pharmacist during rounds, if any questions came up after the conclusion of rounds for the day, or if pharmacists working onsite and offsite needed to communicate throughout the day.

Successful virtual rounding was made possible by strong preestablished relationships among the pharmacist, medical providers, and multidisciplinary team. Well-developed relationships with medical team members allowed pharmacy to continue to play a pivotal role in the care of complex patients.

Finally, an onsite pharmacist monitored all pagers and attended pediatric emergencies. Pharmacist-specific phone extensions were forwarded to the pharmacist's personal phone to allow for seamless communication utilizing pager numbers and phone extensions familiar to the rounding teams.

Preceptor/resident learning perspective. Globally, the precepting components were similar yet included unique challenges inherent to the technology utilized and residents' and preceptors' lack of experience with a virtual rotation. Residency program directors (RPDs) established the expectation that residents would work remotely when their assigned preceptor was working remotely. RPDs and the leadership team encouraged creativity in accomplishing the goals and objectives for rotations and were available for virtual one-on-one sessions if preceptors needed assistance or guidance.

The 4 precepting roles (direct instruction, modeling, coaching, and facilitating) were accomplished utilizing videoconferencing programs instead of face-to-face interactions.[6] Overall, these methods appeared to be equally effective for resident learning.

Because of the timing of events, there was limited preparation for a virtual learning experience. The first day of remote work coincided with the first day of the residents' learning experience. As this was both the preceptors' and residents' first experience with remote work, efforts were made to maintain daily schedules that mimicked onsite activities. These activities included preparation for rounds, prerounding patient review, virtual interdisciplinary rounds, and order verification and clarification. Afternoons included additional patient care discussion and updates, topic discussions, and occasional virtual meetings. With many meetings cancelled, more time was devoted to topic discussions. Videoconferencing and shared screen functionality were utilized for topic discussions to simulate face-to-face communication.

When utilizing secure chat within the EMR, we opted to include the preceptor, resident, and provider in all such communications. Early in the rotation, the preceptor served as the primary contact while the resident observed their approach and communication style. As the rotation progressed, the resident transitioned into the role of primary contact. Using the secure chat functionality also allowed the resident and preceptor to conduct private conversations to develop appropriate responses to questions during rounds.

Several factors contributed to the successful implementation of our virtual rotation experience from the learning experience perspective. Goal setting and feedback were crucial to adapting to the challenges encountered. The resident and preceptor had daily check-ins to set goals for the day, week, and following week, as well as to provide feedback on successful and unsuccessful strategies. These sessions also allowed the preceptor and resident to brainstorm new ideas to improve efficiency and communication. For example, preceptors and residents changed their mode of communication over the course of the rotation as they learned what worked best for simple, clarifying questions compared to more complicated scenarios requiring more in-depth discussion.

Another factor that was paramount to the success of this experience was communication between the preceptor and resident. Effective communication started with setting the groundwork with members of the team before the pharmacist was moved offsite. Communication was important to ensure that the resident felt included in patient care decisions. As the rotation progressed and the resident gained more independence, communication from the resident to the preceptor was equally as important. The preceptor and resident were in constant communication throughout the day so that both remained continually updated.

From the resident perspective, the transition to a virtual rotation experience provided unique and beneficial opportunities. These opportunities included additional time for background reading, increased one-on-one time with the preceptor, and additional support when making recommendations. One challenge encountered by residents during remote work was the lack of face-to-face communication with patient care teams, which delayed development of rapport.

Although remote precepting was not ideal, it was manageable and allowed for a safe learning environment while meeting all rotation goals and objectives.

Challenges and barriers. Network connectivity was occasionally a barrier to virtual rounding, with intermittent decreases in call quality and signal "dead zones" on the units. This barrier was overcome by working with our hospital's IT department to install additional networking nodes in areas with low signal to amplify bandwidth. Bandwidth was also a challenge encountered for our pharmacists who were working from home. Our hospital is located in a rural state with limited choice of internet service providers (ISPs) and limited speed in some locations. One pharmacist was required to change their ISP to better facilitate video rounding. For most of our pharmacists, however, ISP bandwidth was not a barrier to virtual rounding.

Another barrier encountered primarily with the first iteration of virtual rounding was server traffic. Because of

the COVID-19 pandemic, a large group of hospital employees began working from home and utilizing the program we chose for our first attempt at virtual rounding. This may have contributed to decreased call quality and increased signal loss.

Pharmacists also found it difficult to hear conversations that were occurring onsite, both during and after rounds. It was common for the pharmacist to request that the computer or audio device be moved closer to the presenting medical provider so that they could fully hear the plan for the day.

Finally, varying provider buy-in presented a barrier to the implementation and continued use of virtual rounding. This barrier was most tied to concerns about pharmacist accessibility during and after rounds and further compounded by the instability encountered with the initial program chosen for virtual rounding. Furthermore, providers had varying levels of comfort with videoconferencing modalities. This obstacle was overcome by designating one member of the care team to coordinate connection to the videoconferencing program before rounds. This further improved when we transitioned to a second program that required less user input for access.

Future plans. Now that our PICU and NICU pharmacists have transitioned back onsite, we are evaluating ways to continue to utilize these newly acquired skills and technologies. The first area we intend to continue is to allow preceptors the ability to virtually round while residents round independently in the units. Historically, the preceptor roles of coaching and facilitating have been challenging in these specialized units when the medical team can see the experienced pharmacist and preferentially interact with them. We anticipate that the virtual preceptor will be able to observe and coach the resident while the resident maintains the position of acting pharmacist for the team.

Another opportunity related to resident learning is the potential to offer virtual rotations. For residents at other institutions in our system, we could offer elective PICU and NICU rotations without the challenges of housing and travel. Providing specialty pediatric pharmacy services to other hospitals within our system that do not have the pediatric volume to support a full-time position has also been discussed. This would allow pediatric pharmacists within our Children's Hospital to round in small NICUs or general pediatric wards throughout our system.

Conclusion. Pediatric pharmacy specialists were rounding virtually with the medical teams in our PICU and NICU within 1 week of moving to remote clinical pharmacy services during the COVID-19 pandemic. All clinical pharmacy services continued to be completed throughout this period. Over time, changes were made to the technology utilized to provide the best user experience possible. Additionally, the clinical dietician was added to virtual rounds because of the success with clinical pharmacists.

Engaged pharmacists and pharmacy residents provided effective patient care and fulfilled residency objectives while performing their responsibilities remotely. Support from IT, pharmacy management, and the physicians contributed significantly to the success of virtual clinical pharmacy services.

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