Health-system care delivery models are evolving in preparation for an anticipated shift from volume- to value-based care. In an attempt to improve outcomes and value while reducing costs, health systems are pursuing mergers and acquisitions in an attempt to create economies of scale without the cost of new construction. From 2009 to 2013, hospital mergers and acquisitions—through both vertical integration (health systems acquiring physician practices or ambulatory care centers) and horizontal integration (hospitals acquiring other hospitals)—increased 14% annually.

As an example of vertical integration, health systems are investing in freestanding emergency departments (FSEDs) and urgency centers in an effort to expand into new markets, reduce crowding at the parent site’s emergency department, and provide high-quality and convenient emergency care to surrounding communities without the significant expense associated with building a new hospital. According to the American College of Emergency Physicians, an FSED is a facility that is structurally separate and distinct from a hospital and provides emergency care. FSEDs can be affiliated with a hospital (e.g., an offsite hospital-based emergency department) or exist independently. Hospital-based FSEDs are owned and operated by a hospital, located separately from the hospital’s main campus, and subject to the same Centers for Medicare and Medicaid Services (CMS) rules and regulations that apply to the hospital. The higher level of care provided at FSED and urgency center locations necessitates collaboration with pharmacy services to ensure safe, evidence-based, and regulation-compliant provision of care. The following case studies describe the development of pharmacy service models to support FSED and urgency center locations in health systems.

**Background.** In 2012, Abbott Northwestern Hospital (ANW), a community teaching hospital with 630 staffed beds in Minneapolis, Minnesota, that is part of Allina Health, expanded its existing WestHealth ambulatory care location to include a hospital-based FSED and an urgency center. The combined WestHealth FSED and urgency center (WHEDUC) is located approximately 13 miles from ANW. WHEDUC is open 24 hours a day and 365 days a year and is staffed by the same contracted emergency department physicians who staff ANW. Akin to ANW’s parent-site emergency department, WHEDUC provides similar services, accepts ambulances, and is licensed as an outpatient department of the hospital from CMS reimbursement, regulatory, and accreditation standpoints. Patients receive a screening evaluation to determine the appropriate level of care upon arrival and are then triaged to either urgent care or emergency care.

In 2013, North Memorial Medical Center (NMMC), a community hospital with 371 staffed beds in Robbinsdale, Minnesota, opened an urgency center at its affiliated Minnetonka Medical Center. The Minnetonka Medical Center urgency center (MMCUC) is staffed by board-certified emergency physicians and has advanced medical equipment, support services, and i.v. medications available onsite for treatment of illnesses, injuries, and urgent medical conditions. If initial examination determines that a patient needs to be admitted to a hospital, an ambulance transports the patient to a hospital for in-depth assessment and treatment. However, unlike the case with an FSED, ambulances do not bring patients to MMCUC. MMCUC is open 11 a.m.–11 p.m. 7 days a week and 365 days a year.

**WHEDUC medication distribution systems.** Availability of medications for treatment of medical emergen-
cies and urgent care at WHEDUC was a key consideration in planning the new site. Licensure of the service as a department of ANW rather than a freestanding affiliate informed the planning of medication availability under the same regulations and standards applicable to the hospital itself. It should be noted that while WHEDUC is a department of the hospital in all respects, the Drug Enforcement Administration (DEA) required that the site be registered in the practitioner business category, as the site's address is different from that listed in the hospital registration. The medical director at WHEDUC is the DEA registrant. The patient care manager is the DEA attorney-in-fact.

After reviewing options for secure storage, monitoring, and issuance of medications for administration to patients onsite, it was decided that automated dispensing machines (ADMs) would be used to dispense all medications. This change was enabled by the health system's use of a single computer server for all ADMs throughout the 13-hospital healthcare system. The process for adding 2 offsite ADMs for WHEDUC was straightforward and identical to the process for adding ADMs within the hospital itself. The number and types of medications stocked at WHEDUC were based on the medications in use in ANW's emergency department and modified according to anticipated patient care needs. Pharmacists, providers, and nurses provided initial and ongoing input on the types and quantities of medications needed.

Since WHEDUC is 13 miles from the hospital, the matter of getting medications to the WHEDUC site was a challenge addressed early in the planning process. Direct purchase from the ANW wholesaler was ruled out because that would have required purchases in package, carton, or tray sizes far in excess of daily ADM replenishment needs. After discussions with the Minnesota Board of Pharmacy, the decision was made to set up a process for replenishment of ADMs from the hospital using secured shipping containers and contract couriers.

The ADM replenishment process begins at the hospital with the daily automated printing of a restock list for each of the 2 ADMs at WHEDUC (1 each at the FSED and the urgency center). Each of the restock lists is fulfilled by a pharmacy technician using the same process applicable to any hospital-based ADM; the lists’ accuracy is verified by either a pharmacist or a pharmacy intern. These restock lists include any Schedule III, IV, or V controlled substances needing replenishment.

The checked medications are placed in a lockable plastic shipping container and sealed at both ends with specific colored zip ties, one of which has a serial number. The serial number is recorded on a shipping security form along with the date, the destination, and the signature of the pharmacist. The courier service picks up the shipping containers on a schedule. The pharmacy staff member transferring custody of the containers to the courier signs the form, as does the driver accepting the containers. This form is faxed to the attention of the charge nurse at WHEDUC for use in confirming the serial number when the container arrives via courier. The nurse completes the receiving security form by recording the date and the container serial number, signing the form, and obtaining the courier’s signature.

In the case of Schedule II medications, each Monday and Thursday the WHEDUC patient care manager receives a report from the ADM server listing the medications that need replenishment. The attorney-in-fact completes a DEA Form 222 and sends it via courier to the hospital. The Schedule II drugs are prepared by a technician, checked by a pharmacist or pharmacy intern, and sent to WHEDUC in the same containers used for daily replenishment of other items on Tuesdays and Fridays.

As hospital pharmacy employees are not based at WHEDUC, restocking of the ADMs was another topic of discussion with the Minnesota Board of Pharmacy, which approved a variance that permitted a registered nurse to perform the ADM restock process provided that the work was checked by another licensed professional. Additionally, the ADMs require a medication barcode scan to open the cabinet for restocking.

Shipping containers delivered at a time when staff members are unable to immediately restock the ADMs are locked in a cabinet until the staff members have time to perform the restocking. Of note, the ADMs and holding cabinet are under continuous camera surveillance. Recalls and the return of medications to the hospital pharmacy, such as with expired controlled substances, are handled through a process that is essentially the reverse of the process followed to replenish drugs at WHEDUC. If discharge prescriptions are needed, they may be filled at the Allina Health Outpatient Pharmacy located at WestHealth, which is open on weekdays from 8:00 a.m. to 7:00 p.m. and on weekends from 10:00 a.m. to 6:00 p.m.

Ongoing review of WHEDUC medication practices involves monthly audits conducted by a pharmacy technician who travels from the hospital to the site. These audits include reviewing DEA Form 222 documentation and transfer records, monitoring for expired medications or noncompliant medication-related practices, and emptying of medication return bins. Any findings are shared with WHEDUC’s patient care manager.

**MMCUC medication distribution systems.** Before the improvements described below, MMC supplied its emergency centers with medications that were stored in a secure closet. In recognition of an opportunity to increase
patient safety, improve inventory control, and enhance controlled substances monitoring, it was determined that an ADM would be implemented at MMCUC. The process for adding the ADM was identical to the process for adding ADMS within the hospital itself, with the additional consideration of the physical location of the emergency center in proximity to the hospital. NMMC’s ADM restock process involves pharmacy technicians scanning product barcodes and preparing medications as directed by an automated work queue, pharmacists checking the medications, a courier delivering the medications by secure shipping containers, and nurses placing the medications into the ADM by scanning the medication barcode to prompt opening of the cabinet.

NMMC’s Schedule III, IV, and V controlled substances are processed separately from noncontrolled medications. When a Schedule II medication is needed, the narcotic technician e-mails the DEA attorney-in-fact at MMCUC with the name of the drug and the quantity to be replenished. Once a DEA Form 222 is furnished, medications are prepared for shipment. A delivery receipt accompanies all controlled substances and must be returned to the pharmacy after the medication is loaded into the ADM. A pharmacist verifies each item for accuracy and places the items in a plastic shipping container to be sealed with a tamper-proof lock, marked with a courier tracking label, and placed in a designated area for delivery.

NMMC is registered with the 340B Drug Pricing Program as a 340B-covered entity; however, MMCUC does not meet the requirements to qualify as a 340B child site. This situation caused some order-and inventory-management challenges for the hospital pharmacy, where the bulk of the medications were to be housed and prepared for distribution to MMCUC. To ensure that 340B-purchased medications would not be used at MMCUC, a separate inventory storage area was created within the pharmacy, and a separate wholesaler account was used to order all medications to be supplied to MMCUC.

In determining the best method to meet outpatient dispensing needs at MMCUC, several options were vetted, including the addition of an outpatient pharmacy, the use of robotic physician-dispensing systems and physician-dispensed starter packs (i.e., dispensing of small quantities of medications to start a course of therapy). After consideration of patient needs, convenience, regulatory requirements, and organizational costs, the decision to pursue the use of starter packs was made. The pharmacy leadership subsequently worked with the emergency services medical staff leadership to develop a list of medications to dispense under Minnesota Board of Pharmacy physician dispensing requirements as starter packs at MMCUC. Prepackaged starter packs containing a 48-hour supply of medications are labeled with board of pharmacy–compliant labeling and stocked in the emergency center ADM; a provider’s discharge prescription order is required before these medications can be accessed for subsequent dispensing. Once a signed discharge prescription order is received, a patient-specific identification label is printed on a label printer next to the ADM, and the patient’s nurse removes the prepackaged medication from the ADM, labels the prepackaged medication with the patient-specific medication label, and provides the patient with the medication and associated educational material. The amount of medication required to complete the course of therapy is prescribed, and the order is either sent electronically to the patient’s pharmacy of choice or provided as a hard-copy prescription to the patient prior to discharge (at the same time the order for the starter pack is placed).

**Clinical services.** To help drive consistency and reduce maintenance, support, and training requirements, the electronic health records used at WHEDUC and MMCUC are the same as those used at the hospital-based emergency departments across the Allina Health and North Memorial Health Care systems, respectively. The same emergency department physician group that staffs the hospital-based emergency departments provides services at the FSED and the urgency centers. All medication records, order sets, panels, and protocols are approved through hospital-based approval processes before use. An emergency department clinical pharmacist based in the hospital emergency department remotely verifies all medication orders and is available by phone to address patient, provider, or nursing staff questions. Nurses perform compounding of medications with short stability or whose administration cannot be delayed due to the risk of harm to the patient. The pharmacy departments developed training, including instruction via video and paper formats, for sterile technique and compounding. Nurses are required to complete a compounding competency assessment annually.

Pharmacists have been designated as having primary responsibility for clinical review of provider-initiated microbiology cultures and urinalysis results; this includes reviewing the appropriateness of current medications and coordinating with a provider on any needed medication changes. The pharmacist then contacts the patient via phone, coordinates an outpatient prescription (if needed), and completes patient education. Continuous quality improvement of clinical pharmacists’ culture review services is done in collaboration with hospital-based infectious diseases pharmacists. Given the high acceptance rate for this clinical service, ANW is considering an expansion of

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the pharmacist’s scope of practice through development of a collaborative practice agreement with emergency department providers. Additionally, ANW is considering use of telehealth services to expand the pharmacy medication history-taking service to WHEDUC.

**Lessons learned.** Having a key team of responsible healthcare professionals to make and communicate essential decisions is vital to the success of programs such as those described above. Standards already being followed at the parent site can be used as a baseline for the offsite location. Staff may rotate among work sites, which is a primary driver in ensuring that practices are similar, if not the same, for all locations providing similar services.

In terms of reviewing the medication formulary for MMCUC, initial efforts were conservative, and the number of medications stocked in the ADM was limited even in the case of approved medications already stocked at another location. The inconsistency of medication stocking led to confusion and concern that patient care could be affected and also created many requests to add multiple medications to the ADM. The process to request additions and deletions of medications at an offsite location was also a new process for pharmacy personnel. Historically, staff at offsite locations used a paper order form prepopulated with commonly used medications to reorder medications; special requests were handwritten on the order form. There was a need to establish not only a standard medication inventory for the FSEDs and urgency centers but also a process to request modifications to the inventory. MMCUC uses an electronic order requisition form that allowed medication formulary changes to occur more efficiently. WHEDUC uses monthly site visits and regular manager communication to facilitate formulary changes.

To ensure timely medication order response, ANW and WHEDUC leaders worked together to periodically review times from provider medication order entry to pharmacist verification. Results of these analyses were used to maximize pharmacist response time and optimize override medication selections available at the ADM.

As healthcare facilities continue to expand beyond traditional hospital and clinic-based structures into new settings such as FSEDs and urgency centers, pharmacy services need to expand and grow accordingly. These case examples illustrate means by which pharmacists and pharmacy technicians can support these services.

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Rachel Root, Pharm.D., M.S., BCPS
Abbott Northwestern Hospital (part of Allina Health)
Minneapolis, MN
rachel.root@allina.com

Paul Krogh, Pharm.D., M.S., BCPS
North Memorial Medical Center
Robbinsdale, MN

Kristi Gullickson, Pharm.D., FASHP
Abbott Northwestern Hospital (part of Allina Health)
Minneapolis, MN

Barbara Hintzen, B.A., CPhT
North Memorial Medical Center
Robbinsdale, MN

Martha Christophersen, CPhT
North Memorial Medical Center
Robbinsdale, MN

Steven Kastendieck, B.S., Pharm.D., M.S.
Maple Grove, MN

Matt Kresl, Pharm.D., BCPS
Allina Health Bloomington
Bloomington, MN

Mr. Kastendieck is retired. At the time of writing he was affiliated with Abbott Northwestern Hospital (part of Allina Health), Minneapolis, MN.

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