Chapter 5
Management of Refills and Electronic Medical Record in-Basket Messages

Chad Henson Martins, Elizabeth Bowles, and M. Danielle King

Introduction

The intervisit interval is underrepresented in formal ambulatory care curricula. This is the time during which the negotiated plan of care will be implemented, monitored, and titrated. It is human nature to focus on matters directly before us, relegating intervisit patient care to the status of afterthought both in professional practice where providers are expected to complete intervisit task in the moments between face-to-face care and in ambulatory care curricula where formal teaching on the intervisit period is uncommon. Both these situations are unfortunate and inappropriate. The intervisit period is a time to strengthen patient-provider relationships, encourage patient engagement in healthcare, and achieve the connectedness with patients that drew providers to outpatient continuity practice. In graduate medical education, the intervisit period is rife with opportunities to learn the skills, knowledge, and attitude to prepare trainees for outpatient practice. It is crucial that the management of patients *between* visits be given dedicated time and similar amounts of support as face-to-face encounters. It is also important that these tasks be framed accurately as representative of the practice of outpatient medicine. The tasks are not scut work or some other demeaningly labeled activity. Refilling medications, reporting results of testing, and responding to patient communications are opportunities for trainees to practice clinical reasoning, grow communication skills, build rapport,

C. H. Martins · E. Bowles (✉)
Primary Care, Alexandria Louisiana Veterans Health Care System, Adjunct Clinical Assistant Professor of Medicine, Tulane University School of Medicine, New Orleans, LA, USA
e-mail: chad.miller@health.slu.edu; Elizabeth.Bowles@va.gov

M. D. King
Department of Medicine, Southeast Louisiana Veterans Health Care System, Tulane University School of Medicine, New Orleans, LA, USA
e-mail: Melissa.King3@va.gov

L. B. Lu et al. (eds.), *Leading an Academic Medical Practice*,
https://doi.org/10.1007/978-3-031-40273-9_5

connect with patients, demonstrate accountability, and prepare for independent practice.

Outline
- Management of medication refills
- In-basket management
- Result notification
- Triaging patient phone calls
- Patient portal messages
- Conclusion

Medication Refills

A key role in resident management is the oversight of medication prescriptions. Each year, between 7000 and 9000 patients die in the United States due to reported medication errors, and the cost of errors related to medication prescriptions exceeds $40 billion [1]. The reported errors and injuries may represent a much smaller proportion of actual harm. Resident education in medication management and reconciliation is represented in several ACGME milestones, yet there is little guidance on the management of medication between visits. This section will emphasize the importance of proper documentation to avoid medication errors between visits as well as the suggested process for managing medication refill requests in between visits (Table 5.1).

Trainees frequently make medication changes during clinical encounters. Blood pressure and diabetes medication titration are among the most common clinical decisions at the point of care. Residents often will start new medications in a visit, either for chronic disease management or for acute care concerns. Moreover, medication therapy is frequently de-escalated or discontinued at clinical encounters due to nonadherence, tolerability concerns, or changes in clinical condition. In order to improve the medication refill process, it is imperative to properly

Table 5.1 ACGME Milestones related to medication management in ambulatory setting [2]

Patient care	1: History 3: Clinical reasoning 5: Patient management—outpatient 6: Digital care (EHR)
Medical knowledge	2: Therapeutic knowledge 3: Knowledge of diagnostic testing
Professionalism	3: Accountability/conscientiousness
Practice-based learning and improvement	1: Evidence-based and informed practice

document this medication changes at the point of care and to reconcile changes to the medication list. Recommendations for in-office medication management include the following:

- Clinical support staff should take inventory of the medication list during the rooming or pre-visit encounter. This includes reconciling the medication list and seeing if refills are needed.
- When managing any medications whose frequency and dosage do not need adjustment, residents should be trained to provide their patients with enough refills to last 12 months. Most insurance providers allow for and encourage 90-day refills, and clinic attendings can work with the EMR builders to make this the default order for commonly prescribed medications. Such a strategy would not be applicable to controlled substances.
- When making dose changes to medications, residents should be encouraged to not only document this in the progress note, but also adjust the medication list accordingly.
- Sometimes, it may be necessary for significant medication adjustments or those for patients who have low health literacy to be communicated directly to the pharmacy. If refills have already been authorized, automated pharmacy refills could continue without this communication.
- For self-limited prescriptions, residents should be encouraged to enter not only a "start" date, but also an "end date" so that these medications can be removed from the medication list upon completion.

We suggest reviewing medication reconciliation expectations with residents formally on an annual basis, as part of both clinic orientation and reorientation for senior-level residents. Additionally, faculty should be aware of these recommendations in order to best oversee the implementation at the office visit and while precepting.

Refill requests can be generated in several ways. Pharmacies can automatically request refills through the EMR. Patients can request refills through patient portal systems, and they can call to request any medication (new or old). We suggest that the initial requests be triaged through clinical support staff, who can be trained to address refill requests systematically to avoid overutilization of physician resources. Some policy examples for refill requests include the following:

- Set a timeline for patient visits in order to obtain refills. For example, most chronic medications require assessment on an annual basis, so the refilling of medications could be denied by support staff until a visit is scheduled. Alternatively, the staff could process the refill request but also call the patient to schedule.

- Flag medications that require laboratory monitoring. While there are no well-validated guidelines on laboratory monitoring for all medications, many classes of medications require intermittent lab testing, for example, monitoring potassium and serum creatinine for patients on ACE inhibitors or diuretics and hemoglobin A1c for those on diabetes medications. Clinical support staff can review the chart for the relevant lab tests prior to forwarding medication refill requests in order to identify patients who will need a clinical visit or lab testing. Some examples are listed in Table 5.2.

Each resident-based clinic will have its own policy for medication refill requests at the provider level. While some larger institutions might have advanced practice practitioners to assist, residents or clinic faculty might take on the responsibility of managing refills of medications prescribed by their peers. Education around therapeutic monitoring, laboratory monitoring, and chart review should occur on an annual basis in order to make sure that medications are correctly renewed. Residents should be instructed to review the chart of each medication requested to verify that:

- The medication is still actively being prescribed at the correct dose and frequency.
- The patient is not overdue for an appointment or laboratory testing.

Table 5.2 Therapeutic drug monitoring of common outpatient medications [3]

Drug	Test	Frequency
ACE inhibitor/angiotensin receptor blocker (ARB)	BMP (hyperkalemia, serum creatinine)	Annually or within 2 weeks of medication change
Allopurinol	BMP (serum creatinine)	Annually
Amiodarone	CBC, LFT, TSH	Annually
Carbamazepine	CBC, CMP (hepatotoxicity, bone marrow suppression)	Annually
Digoxin	BMP (potassium, creatinine), digoxin level	Annually
Diuretics (loops, thiazides, potassium-sparing)	BMP (potassium, serum creatinine)	Annually
Insulin	A1c	Every 3 months (uncontrolled), every 6 months (controlled)
Metformin	BMP (serum creatinine), A1c	Annually, every 3 months (uncontrolled), every 6 months (controlled)
SGLT-2 inhibitors	BMP (serum creatinine), A1c	Annually, every 3 months (uncontrolled), every 6 months (controlled)
Statins	Lipid panel	Annually
Valproic acid	CBC, CMP (hepatotoxicity, bone marrow suppression), valproic acid level	Annually
Thyroid replacement therapy	TSH	Annually or 6 weeks following dose change

- There are no obvious medication interactions or new medical conditions precluding refill of the medication.

Controlled substances are a special consideration. At some training sites, medications listed as Drug Enforcement Agency Controlled Substances will be managed by the attending physician. Other training sites may include trainees in the prescribing and monitoring of controlled substances. If trainees are involved in the prescribing of controlled substances, they should be educated on appropriate prescribing practices. These include use of prescription drug monitoring sites, urine toxicology testing, and overdose risk mitigation strategies. Similarly, trainees must learn to complete all required regulatory documentation and to maintain any certifications and educational requirements at the local, state, or federal level that apply to the clinic. As trainees will immediately be expected to prescribe controlled substance upon achieving independent practice, they are well served in learning the complexities and risks of this particular prescribing practice.

In-Basket Messages

Attending physicians and residents have the unique opportunity to co-manage a panel of patients. Residents have a primary duty to these patients, and the supervising attending shares duty as well as liability. It is imperative that attendings play an active role in the management of residents not only in the clinical encounter, but also in the follow-up and intervisit management that ensues. This is also represented in several ACGME Milestones (Table 5.3).

Result Notification

In the primary care setting, laboratory testing, imaging, and procedures are ordered to assist in the clinical decision-making process. These tests usually result during the intervisit period. The individual who ordered the tests may be on another rotation outside of the clinic or may be on leave. The manager of the clinical practice and medical director need protocols in place for safe handling of these alerts. The vast majority of healthcare systems utilize electronic medical record systems

Table 5.3 ACGME Milestones related to in-basket message management in ambulatory setting [2]

Patient care	5: Patient management—outpatient 6: Digital care (EHR)
Medical knowledge	2: Therapeutic knowledge 3: Knowledge of diagnostic testing
Professionalism	3: Accountability/conscientiousness
Interpersonal and communications skills	3: Communication within healthcare systems

(EMRs) in which test results will be directed to the ordering provider through a process known as "order entry results reporting." The implication of this is that the ordering provider (trainee) will receive the alert about the test results in their personal account in the EMR, but that person may be working at another academic site for several weeks. Some EMRs are structured such that results are reported to both the ordering resident and supervising attending. This may not be possible in all EMR systems. In collaborating with local informatics professionals, the following options could be discussed:

- Configuration of panels where patients are assigned to a trainee provider/attending provider (team), thus enabling alerts to be routed to that team. EMRs capable of this type of configuration often allow tailored selection of the alert types that will result to the "team."
- Use of surrogacy settings: These are settings found in virtually all EMRs that are intended to facilitate coverage when a healthcare team member is on leave. The function directs the EMR to direct all alerts to the surrogate until the setting is turned off or until a preset date.
- Prompt to select additional desingees to be alerted to results at the time of order entry. This is a less optimal option because it increases the number of clicks to complete an action.
- Manual selection of designees at this time of order placement. This is a cumbersome and error-prone option, and it increases cognitive burden because providers must remember to add additional alerte alert designees without a prompt.

Some systems do not use an electronic medical record or do not have remote access options to allow trainees to log into their accounts when rotating at another site. When there is not an option to access the EMR remotely, it might be difficult or impossible for trainees to safely and effectively manage patients in the intervisit interval. A more attending-reliant process will be necessary.

Once strategies are developed to prevent results from languishing in unreviewed inboxes, the academic practice director will need to consider how trainees will be supported in their development and use of intervisit care competencies. The clinic director, in collaboration with the leadership of the training program and trainee leaders, should delineate formal expectations about intervisit patient management to include roles and responsibilities for the stakeholders (trainees, outpatient attending providers, academic clinic director, nursing and support personnel, and training program). The following is a list, not exhaustive, of considerations for inclusion:

- Trainee responsibility for maintaining remote access to EMR
- Frequency of trainee remote log-in to EMR
- Timeframe for results notification (trainee and attending, see below)
- Protected time for outpatient intervisit care management
- Documentation of intervisit care
- Oversight of intervisit care
- Availability of attendings to trainees who are off-site

As noted above, trainees have primary duties to their patients in the intervisit interval. They are also early in their professional development, being pulled in a number of different directions, working long hours, and at risk for fatigue and burnout. In setting expectations, it is helpful to list those times when the trainee will not be expected to attend to issues in their primary care patients. These include vacation, sick leave, and demanding clinical rotations (ICU, etc.). It is not reasonable, fair, or safe to expect trainees to function without downtime or to divert their attention from critically ill patients or large inpatient rosters when an outpatient attending or a trainee rotating on an ambulatory elective can act as a surrogate for outpatients. Clear communication about the start and stop of these times of coverage is crucial to avoid dangerous lapses in the coverage of clinical notifications.

The intervisit period presents a unique challenge in that clinical management conundrums arise when the trainee is not collocated with their partnered attending physician. Residents should be frequently reminded to ask questions if they struggle to determine an assessment and plan based on results so as to ensure a culture of safety and decrease the delay in result notification. The academic site director must ensure that all attendings have shared their contact information with the trainees, that they are responsive to trainee questions, and that they understand that their trainees may need to confer with them outside of standard clinic operating hours. Demonstrating availability and empathy for the trainees' experience will make contact in times of clinical uncertainty more likely and will decrease the likelihood that a trainee opts for unsupervised clinical action instead of trying to contact an attending who is perceived as unavailable.

Resident clinic directors should determine policies of timeliness of result communication and ensure that faculty and trainees are aware of these expectations. A suggested timeframe is as follows:

- Critical results: all healthcare facilities should have a policy for handling critical results
- Urgent abnormal results: 1 business day
- Abnormal results: 1 week (synchronous or asynchronous communication as deemed clinically appropriate). This timeline may seem long until it is recalled that there are many mild abnormalities that require neither action nor urgent discussion (e.g., stably elevated creatinine)
- Normal results: 1–2 weeks (asynchronous communication recommended for the sake of efficiency)

Attendings should screen the results for any urgent abnormalities and, if identified, address these results in collaboration with or independent of the resident physician, dependent upon the resident's schedule. If results are to be addressed in collaboration with the resident, communication to the resident can be through the EMR, but we also recommend direct contact with the resident through HIPAA-compliant methods. Residents should be instructed to communicate these results and document the communication in the patient's chart. Failed attempts at communication with a patient should also be documented. Multiple failed attempts to contact a patient may require escalation of communication method, up to and including

registered mail, and in extreme situations, police welfare check, based on the criticality of the issue being communicated.

We suggest that all results requiring action or resulting in an alteration of the management plan are communicated synchronously. Additionally, anticipatory management should be considered when ordering tests (i.e., if a lab is abnormal, the follow-up plan will be ...). If this is properly documented, covering providers can more easily communicate results if the resident is unavailable.

Triaging Patient Phone Calls

In addition to the patient care that occurs in the clinic, a primary responsibility of primary care physicians is managing their patient panel between visits. As discussed above, result communication is one form of intervisit management, but patients can also initiate communication with their providers through phone calls or portal messages. Patients may call the office to discuss medication refills (discussed above), questions related to their last visit, or new concerns. Each resident clinic should determine a workflow for triage of these patient calls in order to facilitate timely communication with their providers. Some challenges to this communication with residents include:

- Rotations spent outside of clinic (wards, ICU, electives, etc.) with limited access to EMR or telephone
- Changes in attending oversight in clinic
- Clinical uncertainty in patient management
- EMR inability to send messages to multiple recipients (for instance, sending a call notification to the resident but not the attending)

While every resident clinic will have a different policy for the management of patient calls, all clinics should ensure that patient calls are returned as quickly as possible, with 24-h callback being the goal. Support staff and call centers can be trained to triage messages in order to limit the number of calls the provider needs to return. For example, a list of critical complaints can be established wherein the staff should immediately recommend emergency evaluation. Support staff can also offer same-day visits for new complaints and close follow-up appointments for patients requesting to be seen.

Patient Portal Messages

As with results reporting in the electronic medical record system, the patient portal system should be explored for configuration options that allow notification of a group of persons to patient communications in the portal. This is an extremely common feature, and it allows multi-professional teams to receive and triage patient

requests to the most appropriate person to respond (clerk, LPN, RN, pharmacist, provider). Trainees should be included in these systems along with their attending provider. As recommended with other forms of patient communication, a set of guidelines for timely response should be developed and shared with all team members. When trainees are on leave or on rotations where they are not expected to remotely review alerts, they would be similarly relieved of duty to address patient portal messages.

Management of intervisit patient care is often an unconsidered dimension of the academic clinical practice and medical education. Lack of formal curriculum, competing priorities, and absence of protocols can lead to patient safety vulnerabilities and threats to maintaining positive patient relationships. Strategies to mitigate these risks should include vulnerability analysis, written expectations and protocols, and creation of formal curricula in collaboration with training program leadership.

Conclusion

Management of inter-visit patient care is often an unconsidered dimension of the academic clinical practice and medical education. Lack of formal curriculum, competing priorities, and the absence of protocols can lead to patient safety vulnerabilities and threats to maintaining positive patient relationships. Strategies to mitigate these risks should include vulnerability analysis, written expectations and protocols, and creation of formal curricula in collaboration with training program leadership.

References

1. Wittich CM, Burkle CM, Lanier WL. Medication errors: an overview for clinicians. Mayo Clin Proc. 2014;89(8):1116–25. https://doi.org/10.1016/j.mayocp.2014.05.007. Epub 2014 Jun 27.
2. Accreditation Council for Graduate Medical Education (ACGME) Milestones Guidebook for Residents and Fellows; 2020 https://www.acgme.org/globalassets/pdfs/milestones/internalmedicinemilestones.pdf
3. Raebel MA, Lyons EE, Andrade SE, et al. Laboratory monitoring of drugs at initiation of therapy in ambulatory care. J Gen Intern Med. 2005;20(12):1120–6. https://doi.org/10.1111/j.1525-1497.2005.0257.x