



TECHNICAL REPORT

Dispensing Medications at the Hospital Upon Discharge From an Emergency Department

abstract

FREE

Although most health care services can and should be provided by their medical home, children will be referred or require visits to the emergency department (ED) for emergent clinical conditions or injuries. Continuation of medical care after discharge from an ED is dependent on parents or caregivers' understanding of and compliance with follow-up instructions and on adherence to medication recommendations. ED visits often occur at times when the majority of pharmacies are not open and caregivers are concerned with getting their ill or injured child directly home. Approximately one-third of patients fail to obtain priority medications from a pharmacy after discharge from an ED. The option of judiciously dispensing ED discharge medications from the ED's outpatient pharmacy within the facility is a major convenience that overcomes this obstacle, improving the likelihood of medication adherence. Emergency care encounters should be routinely followed up with primary care provider medical homes to ensure complete and comprehensive care. *Pediatrics* 2012;129:e562–e566

INTRODUCTION

The purpose of this report is provide information to support judicious dispensing of medications to improve compliance with discharge instructions and adherence to medication recommendations after a visit to the emergency department (ED). Unlike scheduled or sick visits to the medical home, most ED visits are unplanned and occur during “off hours.” Families may be limited in their ability to get prescriptions filled immediately for treatment of these acute conditions. Although the primary site of health care should be in the medical home, the ED plays an important role as a safety net for children requiring emergent medical care.^{1–4} Medical care provided in EDs often requires the treatment of acute clinical conditions, with a high priority placed on the timely administration of medications such as analgesics, antibiotics, bronchodilators, and corticosteroids. Prompt initiation and maintenance of therapy are important factors in achieving an optimal therapeutic effect. Relapses or exacerbations of chronic conditions (eg, epilepsy, diabetes) are often attributable to medication nonavailability or nonadherence. Because emergency care is provided around the clock, the lack of available pharmacy services to dispense outpatient medications can be a significant therapeutic barrier. Community-based pharmacies that are open 24 hours a day are valuable community resources in providing these medications at all hours. However, the nearest 24-hour pharmacy may be quite far

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KEY WORDS

emergency department, medication, pharmacy, hospital, discharge

ABBREVIATIONS

ED—emergency department

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The guidance in this report does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

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www.pediatrics.org/cgi/doi/10.1542/peds.2011-3444

doi:10.1542/peds.2011-3444

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

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from the ED, and then the patient or parent must wait for the medication to be dispensed. Most patients and families have already spent a considerable amount of time in the ED receiving diagnostic tests and treatment, and some families do not have the resources to easily travel to an off-site pharmacy. These factors may impede adherence to essential discharge medications and instructions.

Several studies have demonstrated low medication adherence rates after ED visits.⁵⁻¹⁴ In one of the more recent studies, one-third of insured pediatric patients who were prescribed “priority medications” (defined as new medications for an acute condition that excluded over-the-counter medications, refills, and continuation of therapy that was previously initiated) did not pick them up.⁵ In examining the Medicaid subgroup separately, half did not pick up their “priority medications,”⁵ despite the absence of financial barriers. The resources spent on emergency care will not result in optimal outcomes unless prompt medication adherence is achieved. Knowing that medication adherence rates are likely to be low, many emergency physicians choose to err on the side of caution and administer more medications (eg, corticosteroids, long-acting intramuscular antibiotics) before discharging patients from the ED, further increasing cost and lengthening ED stays, or they may choose to hospitalize the patient to avoid the risks associated with non-adherence, adding additional cost.

Although pharmacy access is not the only factor determining medication adherence, it has been demonstrated to be a significant one.⁹ Most studies of medication adherence have been conducted in adult populations, but pediatric studies have demonstrated similar nonadherence rates.^{5,11,12}

The short duration of action of some medications (eg, albuterol) makes it

potentially risky not to provide additional doses on discharge from the ED for home use. Even families who adhere to medication regimens might have difficulty getting such prescriptions filled in time for the patient’s next dose. During epidemics when there may be medication shortages, EDs can be prepared to dispense medication to those most at risk. Parents frequently request that medications be dispensed from the ED, because it is perceived to be faster, more convenient, and a logical patient expectation. Many families may be unfamiliar with the location of local pharmacies, especially a particular pharmacy providing late night service. Dispensing medications for the acute illness or injury from the ED is a means to both improve service to the patient and provide better care. The medical home should be notified of the ED visit and medications prescribed. Renewal of medications or refills of these medications after the acute illness or injury should be done by the primary physician in the medical home.

PRACTICES THAT HAVE BEEN PROPOSED AS POTENTIAL SOLUTIONS

Prescriptions May Be Called In, Faxed, or Submitted Electronically to the Community Pharmacy

Although this has the potential to save time, pharmacists will typically give priority to patients who are physically present and waiting over a patient who may or may not show up. Some antibiotic suspensions are expensive, and if the patient does not pick it up, the pharmacy might have to discard the medication. Thus, suspensions are frequently not reconstituted until the patient is physically present.

The First Antibiotic Dose Can Be Administered in the ED

This works well for patients who are able to take pills. For children, first-dose

administration of antibiotic suspensions requires that unit doses be created. Pharmacies at larger hospitals can efficiently dispense multiple unit doses, but smaller hospitals are more likely to use fewer doses, resulting in more wastage of the remaining reconstituted antibiotic suspension. First-dose administration practice can at least guarantee that the first dose is given, and if the patient is observed briefly, it improves the likelihood that an immediate adverse reaction can be recognized and addressed. This practice can also reduce the need for initial parenteral antibiotic dosing, although long-duration parenteral antibiotics have some advantages over oral antibiotics. Administering a single oral dose in the ED does not necessarily ensure adherence, because the remainder of the medication course must be obtained from an outpatient pharmacy, but it does permit the patient’s family to return home to get some rest so that they can obtain the remainder of the medication course at a more convenient time. Although administering the first antibiotic dose in the ED has significant advantages, dispensing the entire course from the ED is more convenient and is more in line with patient expectations. Factors that improve full adherence are less likely to result in complications from treatment failure and induction of antibiotic resistance.

A Few Days’ Supply of Medication Can Be Dispensed to Allow the Patient Enough Time to Get to a Neighborhood Pharmacy

This solution also works better for medications in pill or capsule formulations but not as well for suspensions. A potential pitfall of this method is the failure of the caregiver to fill the remainder of the prescription because the child appears to be feeling better. This would also require a second prescription to be written for the

outpatient pharmacy and a second pharmacist to be involved in dispensing a single course of therapy. Both are potential sources of error. Electronic health record and order entry systems would need to generate 2 “prescriptions” with coordinated start and stop dates, making the process of ordering a single course of therapy twice as complicated and time-consuming.

Drug Company Samples Can Be Used

Samples dispensed in a private office setting are severely restricted in hospital-based EDs, essentially making them infeasible. All medications dispensed within a hospital (including samples) must be managed and regulated by the pharmacy. Additionally, samples are only available for a small proportion of medications used in children, and the appropriate formulation is often not available, making this option difficult to manage and unreliable. Electronic health records that maintain a patient’s medication record would have difficulty keeping track of medication samples, because it is possible that no prescription would be generated, resulting in a lack of records in the patient’s prescription history.

BARRIERS TO DISPENSING HOME MEDICATIONS FROM THE ED

Staffing of a 24-Hour Outpatient Pharmacy Is Not Likely to Be Cost-Effective

Transferring all the home prescriptions from the ED to the pharmacist(s) increases their workload substantially, such that it might compromise the other duties of the pharmacist(s) and create the potential for medication errors. Staffing of additional pharmacists may be difficult to achieve, because they are in short supply in many areas or the expense may not be

supported by the revenue gained from filling home medication prescriptions. Many patient care improvements are not cost-neutral, but the overall systematic improvement in patient care may justify these expenses. Competing demands for pharmacist resources would need to be addressed in most health systems. Expecting that patient satisfaction improvements will be without cost is unreasonable. In this case, patient satisfaction and medication adherence can both potentially improve.

There Is Concern That This Prescribing Practice Might Be Illegal

Some states have regulations limiting outpatient dispensing by an inpatient facility. For example, the state of Massachusetts allows hospital inpatient pharmacies to dispense up to 14 days of medication, whereas the state of Washington only allows hospital inpatient pharmacies to dispense a 24-hour supply, except in extraordinary circumstances. Many hospital pharmacies have created programs to dispense to outpatients when confronted with extraordinary circumstances, such as free-care patients or medications that cannot be obtained in the community. Regulations cited typically apply to medications dispensed by the ED (not a pharmacy), medications dispensed by the hospital inpatient pharmacy, medications dispensed by the hospital, or a limited subset of medications (eg, controlled substances or “dangerous” medications). Note that these special regulations apply to hospital units or inpatient pharmacies but not to outpatient pharmacies, therefore the most efficient solution with the fewest regulatory obstacles is to have a 24-hour outpatient pharmacy available to service the needs of the ED.

Insurance Companies Might Choose to Deny Payment for Outpatient Medications Dispensed by an Inpatient Pharmacy

This is difficult to confirm or refute, because insurance company reimbursement practices may vary within a given state or region or health plan. In theory, there should be no reason why an insurance company would reimburse a community outpatient pharmacy but not a hospital pharmacy, as long as the costs and the regulatory requirements are the same. If this practice becomes more common, then insurance company reimbursement practices for this are likely to become more consistent. Having a 24-hour outpatient pharmacy available to service the needs of the ED would address this concern as well.

Hospitals Might Have an Economic Advantage (Because of Size and/or Nonprofit Status) Over Small Community Pharmacies, Because Hospitals Purchase Medications in Larger Bulk and Under Different Contract Agreements

This may be true relative to smaller community pharmacies; however, it is less common that a 24-hour pharmacy is a small community pharmacy. The current 24-hour pharmacies are generally part of larger pharmacy chains that have similar purchasing strength. Federal case law has been established in this issue, and the only restriction is that hospital-based pharmacies are limited in the total day supply that can be dispensed.¹⁴

POTENTIAL ADVERSE EFFECTS OF DISPENSING MEDICATIONS FROM THE ED OR HOSPITAL PHARMACY

Dispensing Home Medications From the ED or Hospital Pharmacy Simplifies and Increases the Convenience of Obtaining Medications, Which Might Further

Encourage the Inappropriate Use of the ED (Versus the Medical Home) for Minor Acute Care

The medical home is the preferred site of care for most common illnesses and minor injuries. Most EDs will triage patients with minor acute conditions to lower-priority categories, resulting in longer waiting times in most cases. It is a rare family that would wait hours in an ED just for the convenience of also getting their discharge medications. Perceived abuse of the emergency care system is more likely to be a symptom of community primary care availability rather than the desire to get a convenient medication. Not dispensing medications from the ED does not fix this problem. On the contrary, providing medications from the ED under these circumstances helps patients receive necessary treatment, providing the beneficial safety net of emergency care.

Obligating Hospital Pharmacies to Dispense Medications to Uninsured Patients Increases Financial Expenses

Community pharmacies are unlikely to dispense medications at no charge if the patient lacks financial resources to cover the expense of the medications. Dispensing the medications at no charge from a hospital pharmacy represents an expense, but this expense is often less than the overall health care costs of not treating the condition. Small rural hospital EDs should not be expected to have the same resources as larger hospitals; however, there should be an available option for patients to obtain their medications.

Both of These Potential Adverse Effects of Dispensing Medications on Discharge From the ED Can Be Reduced by Requiring the Physician to Confirm That the

Need for the Medication Is a High Priority

For example, refilling a prescription that will run out in 1 week is not the role of an ED pharmacy. A standardized set of indications for dispensing discharge medications from the ED outpatient pharmacy (including a no-charge compassionate care provision) can be agreed on in advance to facilitate this process. Creation of such a system also permits physicians to appreciate cost and efficacy factors that are assessed to a lesser degree during conventional medication prescribing decisions. Special circumstances that cannot be anticipated in advance can be considered on a case-by-case basis with the ED physician and the pharmacist on duty.

Dispensing Medications May Further Slow ED Throughput

Turnaround time, or “throughput,” is a critical focus in most EDs. By providing medications for discharge, a system must be set up so that dispensing of these medications does not impede patient flow. Such systems can be accomplished through a predetermined list of high-use medications that can be dispensed, which would facilitate the availability of templated paper orders or computerized order sets, preprinted labels, and appropriate stock and supplies. These preparations can significantly improve turnaround time for prescription dispensing in the ED environment.

SUMMARY

Clinical outcomes for many acute conditions are highly dependent on timely access to medications. Optimal care is compromised if it is accompanied by lack of ready access to such medications. Although most health care should be sought from the medical home, unanticipated and off-hour visits

to an ED for an acute illness or injury occur. Access to quality emergency care should be available to all, including access to the essential components of “after care” following an ED visit.

Failing to provide access to appropriate medications to treat conditions identified by emergency care encounters compromises the emergency care safety net. Children and families with no insurance and no ability to pay for medications at a retail pharmacy are not likely to be given medications at no charge. Some parents will not disclose inability to pay at the time of the ED encounter. By dispensing medications at the site of service, inability to pay can be identified promptly so that less costly therapeutic options can be offered or a no-charge compassionate care provision can be used to dispense the medications under a predetermined protocol. Federal regulations require that that emergency care be provided regardless of ability to pay. The benefit of this first step is not fully realized until treatment is initiated and completed.

Providing important and necessary medications from the ED outpatient pharmacy in selected instances reduces the risk of nonadherence by providing the medications more conveniently, reliably, and in a manner more proximate to the encounter, giving providers additional opportunities to reinforce medication instructions and their importance. This results in a more optimal therapeutic approach in conjunction with primary care follow-up and communication to maximize the likelihood of a good outcome.

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REFERENCES

1. Institute of Medicine, Committee on the Future of Emergency Care in the United States Health System. *Hospital-Based Emergency Care: At the Breaking Point. Future of Emergency Care Series*. Washington, DC: National Academies Press; 2007
2. Institute of Medicine, Committee on the Future of Emergency Care in the United States Health System. *Emergency Care for Children: Growing Pains. Future of Emergency Care Series*. Washington, DC: National Academies Press; 2007
3. American Academy of Pediatrics Committee on Pediatric Emergency Medicine. Overcrowding crisis in our nation's emergency departments: is our safety net unraveling? *Pediatrics*. 2004;114(3):878–888
4. Yamamoto LG; American Academy of Pediatrics Committee on Pediatric Emergency Medicine. Access to optimal emergency care for children. *Pediatrics*. 2007;119(1):161–164
5. Kajioka EH, Itoman EM, Li ML, Taira DA, Li GG, Yamamoto LG. Pediatric prescription pick-up rates after ED visits. *Am J Emerg Med*. 2005; 23(4):454–458
6. Saunders CE. Patient compliance in filling prescriptions after discharge from the emergency department. *Am J Emerg Med*. 1987;5(4):283–286
7. Thomas EJ, Burstin HR, O'Neil AC, Orav EJ, Brennan TA. Patient noncompliance with medical advice after the emergency department visit. *Ann Emerg Med*. 1996;27(1):49–55
8. Tackitt RD, Winship HW III. Effects of an outpatient pharmacy on the acquisition of prescription medications by emergency room patients. *Hosp Pharm*. 1975;10(8):333–334, 338–339
9. Ginde AA, Von Harz BC, Turnbow D, Lewis LM. The effect of ED prescription dispensing on patient compliance. *Am J Emerg Med*. 2003; 21(4):313–315
10. Freeman CP, Guly HR. Do accident and emergency patients collect their prescribed medication? *Arch Emerg Med*. 1985; 2(1):41–43
11. Matsui D, Joubert GI, Dykxhoorn S, Rieder MJ. Compliance with prescription filling in the pediatric emergency department. *Arch Pediatr Adolesc Med*. 2000;154(2):195–198
12. Cooper WO, Hickson GB. Corticosteroid prescription filling for children covered by Medicaid following an emergency department visit or a hospitalization for asthma. *Arch Pediatr Adolesc Med*. 2001;155(10):1111–1115
13. Wang NE, Gisondi MA, Golzari M, van der Vlugt TM, Tuuli M. Socioeconomic disparities are negatively associated with pediatric emergency department aftercare compliance. *Acad Emerg Med*. 2003;10(11):1278–1284
14. US Supreme Court. *Abbott Labs v Portland Retail Druggists*, 425 US 1 (1976). 425 US 1 *Abbott Laboratories et al v Portland Retail Druggists Assn Inc*. Certiorari to the US Court of Appeals for the 9th Circuit. No. 74-1274. Argued December 16, 1975. Decided March 24, 1976

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Pediatrics 2012;129:e562

DOI: 10.1542/peds.2011-3444 originally published online January 30, 2012;

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The online version of this article, along with updated information and services, is located on the World Wide Web at:

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