Does Providing Prescription Information or Services Improve Medication Adherence Among Patients Discharged From the Emergency Department? A Randomized Controlled Trial

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Study objective: We determine whether prescription information or services improve the medication adherence of emergency department (ED) patients.

Methods: Adult patients treated at one of 3 EDs between November 2010 and September 2011 and prescribed an antibiotic, central nervous system, gastrointestinal, cardiac, or respiratory drug at discharge were eligible. Subjects were randomly assigned to usual care or one of 3 prescription information or services intervention groups: (1) practical services to reduce barriers to prescription filling (practical prescription information or services); (2) consumer drug information from MedlinePlus (MedlinePlus prescription information or services); or (3) both services and information (combination prescription information or services). Self-reported medication adherence, measured by primary adherence (prescription filling) and persistence (receiving medicine as prescribed) rates, was determined during a telephone interview 1 week postdischarge.

Results: Of the 3,940 subjects enrolled and randomly allocated to treatment, 86% (N=3,386) completed the follow-up interview. Overall, primary adherence was 88% and persistence was 48%. Across the sites, primary adherence and persistence did not differ significantly between usual care and the prescription information or services groups. However, at site C, subjects who received the practical prescription information or services (odds ratio [OR]=2.4; 95% confidence interval [CI] 1.4 to 4.3) or combination prescription information or services (OR=1.8; 95% CI 1.1 to 3.1) were more likely to fill their prescription compared with usual care. Among subjects prescribed a drug that treats an underlying condition, subjects who received the practical prescription information or services were more likely to fill their prescription (OR=1.8; 95% CI 1.0 to 3.1) compared with subjects who received usual care.

Conclusion: Prescription filling and receiving medications as prescribed was not meaningfully improved by offering patients patient-centered prescription information and services. [Ann Emerg Med. 2013;62:212-223.]

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INTRODUCTION

Patients prescribed self-administered medications frequently receive less than half the doses.[1] Poor adherence to medication regimens is associated with worsening of disease, death, and increased health care costs in the United States.[2] The majority of medication adherence studies conducted to date have focused on improving adherence to regimens for chronic conditions.[1] Approximately two thirds of patients discharged from emergency departments (EDs) receive at least 1 prescription medication.[3] Previous ED medication adherence studies report that 12% to 22% of adult patients do not fill their prescriptions and approximately 40% do not receive their medications as prescribed.[4-12]

Nonadherence is multifactorial. ED system factors that may contribute to nonadherence include lack of reinforcement of treatment adherence, difficulty obtaining treatment clarification after discharge, and ED crowding.[13] In addition, ED providers are usually unfamiliar with their patients, they may not take into account a patient's lifestyle or resources when formulating a treatment regimen, and families are less involved in the treatment plan. Finally, EDs serve a substantial proportion of patients who are socioeconomically disadvantaged and may not have the resources to pay for prescription medications.[14]

The Health Belief Model posits that people's health behaviors are influenced by their perceptions of susceptibility to illness, consequences of illness severity, benefits and barriers of the proposed treatment, and health motivation.[15] Many

Editor's Capsule Summary

What is already known on this topic

Patients often fail to fill or receive recommended prescription medications after emergency department (ED) discharge.

What question this study addressed

Does delivering customized prescriptions and additional personalized education to patients change self-reported medication adherence after ED discharge compared with traditional approaches?

What this study adds to our knowledge

In a randomized cohort of 3,940 ED subjects, 88% filled the discharge prescription and 48% reported receiving it as recommended, with no important differences between groups.

How this is relevant to clinical practice

Something more than or in addition to this educational effort will be needed to improve adherence with ED discharge medication plans. Whether actual adherence is even this high is unknown.

problems cited above may be mitigated by improving the information exchange between patient and provider at ED discharge. The objective of this study was to determine whether giving patients customized prescription information or services in the ED would increase medication adherence.

MATERIALS AND METHODS

Study Design

We conducted a randomized controlled trial using a 4-group parallel design to evaluate the effect of prescription information or services on short-term medication adherence of patients discharged from the ED. We randomly allocated subjects to usual care or one of 3 prescription information or services intervention groups before ED discharge. We interviewed them 1 week later to ascertain medication adherence, satisfaction with the prescription drug information they received, satisfaction with ED care, and subsequent health care use. The randomized controlled trial was approved by the institutional review board of the health care system associated with the 3 study EDs. The study, RC1LM010424-0, was registered at ClinicalTrials.gov at http://www.clinicaltrials.gov/.

Setting

The study EDs operate within the same health system and each ED has an annual census of approximately 60,000. The 3 EDs serve distinctly different patient populations (Table 1). Study enrollment occurred between November 15, 2010, and September 9, 2011. However, because of limited research staffing, enrollment at sites A (April 1, 2011, to September 9, 2011) and C alternated (November 15, 2010, to March 31, 2011), and only site B enrolled throughout the 10-month period. We reached the target sample size (see data analysis section) but did not terminate enrollment until funds for data collection activities were expended.

Selection of Participants

Adult patients (≥18 years old) discharged with a prescription or over-the-counter medication from one of 5 drug classes were eligible: antibiotic, central nervous system, gastrointestinal, cardiac, and respiratory (see Appendix E1, available online at http://www.annemergmed.com, for detailed drug information).[16] These 5 drug classes represent 87% of all drugs prescribed in the ED.[3] Subjects were excluded if they were not alert, were non-English speaking, or were previously enrolled.

Data coordination staff generated random treatment assignment at each study site, using a block size of 8 to ensure even daily distribution across 3 intervention groups and usual care. Consented subjects were randomized to a treatment or control group, using a 1:1:1:1 ratio. Treatment assignment was concealed in opaque envelopes, and allocation of the masked treatment assignment was performed by the research assistants at enrollment.

During the hours of highest patient arrival rates (ie, 10 AM to 10 PM on weekdays and 10 AM to 6 PM on weekends), research assistants screened and enrolled eligible patients after treatment was complete and patients were ready for discharge. The research assistant approached eligible patients, explained the study, and obtained written consent if the patient agreed to participate. After obtaining consent, the research assistant completed a face-to-face interview with the subject and offered the randomly allocated intervention. Because of the nature of the intervention, no individuals were blinded to which group subjects were allocated. For all enrolled subjects, the research assistants documented each medication prescribed, dosage frequency, total dosage prescribed, and whether the drug was prescribed as needed.

One week after the ED visit, the research assistants contacted subjects for a telephone follow-up interview. All subjects received a thank-you letter and $10.00 CVS gift card for study completion. All screening, enrollment and follow-up data were directly entered into a real-time secure, Web-based, data collection system developed specifically for the study or documented on study forms and then entered into the study database during the research assistant's shift.

Interventions

Subjects were randomized to one of 4 study groups: (1) usual care, (2) practical prescription information or services designed to improve the likelihood of prescription filling, (3) MedlinePlus prescription information or services intended to improve adherence to the treatment regimen, or (4) a combination prescription information or services designed to