Title

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Authors

Rooke, Carlin
Kalontar, Enessa
Richman, Mark

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ORIGINAL RESEARCH

Not a Benign Chief Complaint: A Description of Medication "Refill" Visits at an Urban Emergency Department/Urgent Care Clinic

[1]Carlin Rooke, MD, [2]Enessa Kalontar, and [2]Mark Richman, MD, MPH

[1]David Geffen School of Medicine at UCLA, Department of Medicine, Olive View-UCLA Medical Center
[1]Long Island Jewish Medical Center Department of Emergency Medicine

Introduction

Nearly 50% of Americans have at least one chronic disease,[1] and many receive prescription medications through primary care physicians (PCP) or specialty physicians. Long-term medication adherence requires timely medication refills and renewals.[2] Patients seeking care at public hospitals frequently have difficulty accessing primary care,[3] which may impact access to prescription renewals. Though commonly called "medication refills," this is a misnomer. Refills do not require re-writing a prescription, whereas renewals require a new prescription.

Other barriers for medication renewals include prescriber hesitancy to renew medications written by others, low health literacy,[4,5] and socio-economic barriers, such as inability to miss work for healthcare visits.[6-8] Patients may discontinue medications prescribed for typically-asymptomatic conditions (eg, hypertension).[9] With increasing demand for primary care, and a shortage of providers, patients may be unable to access care for timely renewals.[10] Patients who are unable to obtain "refills" at routine appointments may rely on unscheduled care at Emergency Departments (ED) or Urgent Care (UC) clinics for refills, frequently after symptoms begin.[11]

This cross-sectional study describes visits for medication renewals/refills from both the ED and UC Clinic at a publicly-funded urban hospital. We hypothesized medication refill visits comprise a substantial percent of ED and UC visits, potentially diverting valuable resources from patients with acute medical issues. We also hypothesized some patients presenting with a chief complaint of "medication refill" might require hospitalization because their medical condition deteriorated after running out of medication.

Methods

The hospital at which this study was conducted is a 377-licensed bed, publicly-supported, academic teaching hospital offering inpatient and outpatient adult and pediatric generalist and specialty care serving a medically-indigent population. Patients seeking unscheduled care present to a common ED and UC check-in area and are triaged to either the ED or UC. At the time of this study, there was no separate medical screening at presentation, with first provider contact after being brought to a treatment area. Data were collected retrospectively from the emergency department's information system ("Advanced Triage and Emergency Medicine Management"). All ED and UC adult visits with a chief complaint or discharge diagnosis of "medication refill" or "medication renewal" between January 2006 and June 2008 were included.

Data collected included: date and time of visit, location seen (ED vs. UC), demographic information, vital signs, visit cycle time, chief complaint, discharge diagnosis, and disposition, Subjects with missing or invalid data were not included in analyses of the affected variables. Statistical analyses were performed using Microsoft Excel (2010, Redmond, WA) with significance level <0.05. The study was approved by the Institutional Review Board.

Results

Volume

Between 2006 and 2008, ED visits for medication renewals increased 23% (530 to 654 visits/year. Overall ED visits increased commensurately, and visits for medication renewals remained at 1.5% of ED visits ($p = 1.0$). In contrast, UC visits for medication renewals increased 43% (1,414 to 2,018 visits/year), exceeding overall UC visit volume growth of 24.6%. As a total of UC visits, medication renewals increased from 7.5% to 10%, a 33% relative increase ($p <0.001$). Many patients returned for medication renewals multiple times per year. During the study period the number of visits by repeat patients increased, ultimately accounting for over 1/3 of all renewal visits.

Medications renewed tended to be for chronic conditions. Diabetes, hypertension, and neurological conditions (such as seizures) accounted for over 50% of visits. Compared with the hospital's general adult population, a higher percentage of patients seeking medication renewals were working-age, non-Latino men (Table 1). Length of stay averaged 5.5 hours for UC and 7 hours for ED medication renewal visits. Cumulatively

these patients spent 15,000 hours annually for their renewal prescriptions.

The percentage of admissions among combined ED and UC medication renewal patients increased from 1.1% to 2.6% between 2006 and 2008. In 2008, medication renewal patients triaged to the ED were admitted to the hospital at three times the 2006 percentage, 7.0% vs 2.2%, p <0.001. (Figure 1). Hospitalizations resulting from non-medication-renewal-related ED/UC visits remained constant (22%).

Discussion

We believe this is the first comprehensive evaluation of medication renewal visits on patients presenting for unscheduled care. Our hospital's Emergency Department and Urgent Care Clinic are important venues for medication renewals/refills and are used disproportionately by working-age men.

Both the absolute number of renewal visits and the frequency with which patients presenting for medication renewal are hospitalized increased during the 30-month study. Given the generally benign nature of the chief complaint "medication renewal/refill," a surprisingly-high percent of patients were admitted to the hospital.

To our knowledge, this is the first study including visits to urgent care for medication renewals. A prior study found 8% of ED visits for non-acute complaints were for medication renewal,[12] similar to our finding of 7.5%-10% of patients triaged to UC. The percent of ED visits for medication renewals, and their demographic associations, are consistent with findings by Miller et al,[11] who studied medication renewal visits by patients with chronic illness at a safety-net emergency department. In Miller's study, 29% of ED visits by patients with congestive heart failure, diabetes, and/or hypertension were for medication renewals; younger age (<50 years old), minority status, poverty (income <$5,000), and lack of health insurance were independently associated with presentation for renewals.

We theorize patients use ED and UC venues for medication renewals for several reasons. Employment conflicts may cause working-age men to miss scheduled primary care appointments. Increasing volume of primary care may result in longer intervals between follow-up appointments,[13] with more patients running out of medications between visits. Fluctuations in insurance coverage is also associated with difficulty accessing primary care.[14,15] Patients with poor health literacy may not know refills are available and do not require a prescription renewal.[16] Female patients have more primary care visits per patient,[17] with more opportunities to obtain prescription renewals, avoiding ED and UC visits. Providers may not prescribe amounts adequate to last until the patient's next scheduled appointment. Patients with chronic medical conditions often require multiple medications with different renewal deadlines from different prescribers, making it easy to run out of medications and refills. Finally, as many chronic conditions are typically asymptomatic, patients lack symptom-based motivation for renewing medications in a timely manner.[9] The surprisingly high admission rates could be explained by patients delaying renewals/refills until their conditions had worsened to the point they required hospitalization. Difficulty accessing primary care, and long wait times of more than 5 hours for unscheduled care, may discourage patients from seeking care for medication renewals until their chronic diseases become symptomatic.[18]

The results from our study highlight the importance of vigilance when triaging individuals with the seemingly benign chief complaint of "medication refills." Our data suggest abnormal vital signs cannot be relied upon as a sole means of predicting which patients require higher levels of care. Many patients with acceptable vital signs triaged to UC were admitted.

The Affordable Care Act extended coverage to 20 million previously-uninsured individuals and resulted in a 21% increase in Medicaid enrollment.[19] Uninsured ED visits dropped after the ACA's 2014 implementation.[20] Insured patients are more likely to obtain prescribed medications than uninsured individuals.[21] Increasing access to insurance through the Affordable Care Act may decrease reliance on ED and UC for medication renewals. However, shortage of PCPs[20,22] may worsen with wider availability of health insurance and may not result in improved access.[23,24] Miller's study looked specifically at patients seeking medication renewals for medications commonly prescribed by PCPs, and found no association between having or not having a PCP.[11]

Although a minority of patients with a "medication refill" visit require admission, these visits place an additional burden on an already-stressed ED/UC environment. Workflow redesign, such as scheduling follow-up appointments prior to prescription writing, or reminder prompts during electronic prescribing, might decrease prescribing of inadequate amounts of medication. Asking all prescribers to review/renew chronic medications at either PCP or specialty clinic visits would also help. Pharmacist-staffed "refill" clinics have been demonstrated to be of high quality and reduce provider time spent on medication renewals.[25] Primary care clinics can adopt policies allowing for walk-in or telephone visits for prescription renewals. Finally, the increasing adoption of e-prescribing and patient portals may make it easier for patients to obtain medication renewals.

Limitations

This study has several limitations. As a single-site study at a safety-net teaching hospital (serving a largely minority, non-English-speaking population), results may not be generalizable. The study examined visits more than 10 years ago, which may not be representative of current practice, given the ACA and widespread adoption of electronic health records (EHRs).

Conclusions

The chief complaint "medication refill" should not be assumed benign, as a substantial number of these patients were admitted to the hospital. Medication refill ED and UC visits may reflect poor access to routine care, and were accessed repeatedly by a subset of patients, despite long visit times (>5 hours/visit). Future areas of study include quantifying and describing ED and UC visits for medication renewals post-ACA implementation and impact of operational changes to improve ease of obtaining refills using the EHR.

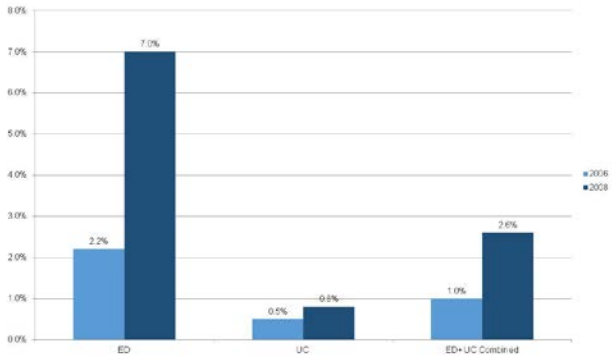

Figure 1. Percent of Medication Refill Patients Admitted from ED or UC by Year.

Table 1: Demographic Characteristics

Characteristic	Medication Renewal-Seeking Patients (%)	Overall Hospital Population (%)	P-Value
Working Age (18-65)	92	78	<0.001
Gender (% male)	57	41	<0.001
Hispanic Race/Ethnicity	59	69	<0.001

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