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Descriptive Report

Containing Prescription Drug Costs at a Resource-Limited, Student-Run Clinic for the Uninsured

Jaya Batra[1]; Haoming Xu[1]; Robert A. Rifkin[1]; Ann Wang[1]; Preston Atteberry[1]; David Thomas, MD, MHPE[2]; Yasmin Meah, MD[3]

[1]Icahn School of Medicine at Mount Sinai, New York, New York, USA
[2]Professor of Medicine, Medical Education, and Rehabilitation Medicine, Vice Chair for Education, Samuel Bronfman Department of Medicine, Associate Dean for CME, Icahn School of Medicine at Mount Sinai, New York, New York, USA
[3]Associate Professor of Medicine, Medical Education, Geriatrics, and Palliative Care, Icahn School of Medicine at Mount Sinai, New York, New York, USA

Corresponding Author: Jaya Batra; email: jaya.batra@icahn,mssm.edu

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Abstract

Prescription drug coverage and reduced medication copayments have been shown to increase medication adherence, improve health care outcomes, and reduce racial and ethnic outcome disparities. This is especially true for uninsured patients who face greater obstacles and cost-barriers in obtaining medications than their insured counterparts. For this reason, some free clinics, including our own, provide medications to patients at no out-of-pocket cost. However, the price of supplying pharmaceuticals and medical supplies at reduced or no cost is a significant financial burden to free clinics, particularly those committed to providing care to the chronically ill, a population whose monthly drug costs can be steep. In this article, we present our free clinic's evidence-based, value-conscious approach to providing patients with prescription medications at no charge, and evaluate the cost-savings of this operation. Specifically, we highlight the following three strategies and the associated annual savings: implementation of an evidence-based formulary with drug costs available at the point-of-care; the use of Patient Drug Assistance Programs to obtain expensive, off-formulary medications; and utilization of wholesale vendors to obtain blood glucose testing supplies. We present the opportunities, limitations, and lessons learned from this ongoing effort for free clinics to optimize their own drug and medical supply coverage programs.

Introduction

In the United States, poor medication adherence, especially in patients with chronic conditions, is associated with poor clinical outcomes and increased health care costs.[1-4] The IMS Institute for Healthcare Informatics estimates that spending associated with medication non-adherence accounts for $105.4 billion annually, or 50 percent of all avoidable health care spending.[5] Improvement of adherence rates is therefore critical to improving health and reducing wasteful health care spending. Prescription drug coverage and reduced medication copayment plans have been shown to increase patient adherence, improve disease outcomes, and reduce disparities in health care outcomes across racial and ethnic groups.[6,7] However, for many resource-limited health centers the cost of providing free prescription medications is prohibitive.

The East Harlem Health Outreach Partnership (EHHOP) at the Icahn School of Medicine at Mount Sinai is a medical student-run, attending-supervised free clinic that offers free comprehensive medical care and covers the cost of prescription medications for more than 300 uninsured patients in East Harlem, New York City. The clinic is funded by both institutional grants and individual donations. Medical and nursing students volunteer their time in the various clinical and non-clinical roles at the clinic; in some instances, these volunteer activities may be used towards credit for other requirements in their respective programs. For instance, nursing students use their time to count towards field work hours in preparation for

their Nurse Practitioner licenses. Faculty who volunteer for at least three clinical sessions per year are given credit for service to the institution and are eligible to receive a secondary appointment in the Department of Medical Education. Clinic space and equipment are donated by multiple departments at Mount Sinai including the Departments of Medicine, Obstetrics and Gynecology, Ophthalmology, and Podiatry.

The clinic's panel is burdened by a high prevalence of chronic illness, a reflection of the overall health of the East Harlem community: 17.9 percent of adults suffer from diabetes, 36.1 percent from hypertension, 27.8 percent from hyperlipidemia, 22.8 percent from asthma, and over 30 percent of the population is obese.[8] Consequently, anti-diabetic and cardiovascular agents together represent 72 percent of our clinic's total prescription drug costs (Figure 1).

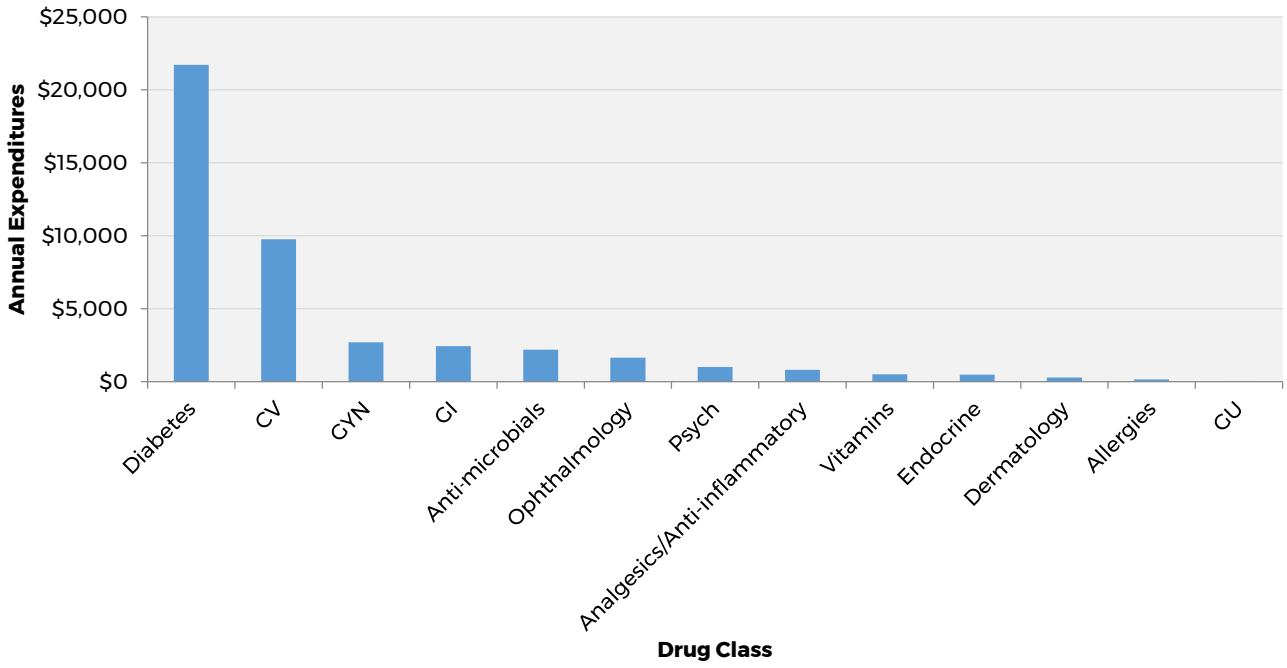
The cost of medication-based treatments for chronic conditions represents a growing expense in the clinic's total operating budget. In 2015, the annual cost of prescription medications and diabetes testing supplies totaled $48,226, or 58 percent of the clinic's annual budget, up from $36,874 (72%) in 2013. As drug prices continue to rise nationwide, this upward trend is likely to continue.[9,10]

To meet rising budgetary demands, beginning in 2013 the clinic implemented three protocols aimed at reducing pharmacy expenditures: the development of an evidence-based, value-conscious formulary that is readily accessible electronically at the point-of-care; the use of Patient Drug Assistance Programs (PDAPs) to procure expensive, off-formulary medications; and the use of wholesale vendors to bulk-purchase commonly prescribed blood glucose testing supplies, which account for a large portion of monthly expenditures for diabetic patients. In this paper, we demonstrate the cost-savings associated with each protocol with the aim of helping other resource-limited clinics contain pharmacy costs.

Implementation of an Evidence-based, Value-conscious Formulary to Reduce Costs

On the day of clinic, student trainees and faculty physicians electronically prescribe medications through a partnering pharmacy located at

Figure 1. Annual clinic spending on prescription drugs by drug class



CV: cardiovascular, GYN: gynecologic, GI: gastrointestinal, Psych: psychiatric, GU: genitourinary

the Icahn School of Medicine. When patients pick up the filled prescriptions, the pharmacy charges the clinic directly for the full cost of the medication. Costs associated with prescription medications represents a considerable portion of the clinic's total operating budget. There is significant evidence that physicians are inadequately prepared to make cost-conscious prescribing decisions in their daily practice.[11-14] Two widely-cited reasons are insufficient training on medication costs throughout medical education and few readily accessible resources with drug price information.[12] There are additional barriers in student-run free clinics where prescribing decisions are made by student-clinicians and a rotating set of physician-volunteers. Student clinicians have limited clinical experience to make confident prescribing decisions, and their volunteer preceptors, who may not usually practice in resource-limited settings, are often unaccustomed to incorporating drug costs into their decision-making.

An electronic formulary that is easily accessible at the point-of-care has been shown to address many of these challenges and with sufficient physician buy-in can function as a valuable tool to standardize prescribing behaviors and promote value-conscious decision-making.[15] In 2013, medical students under the advisement of faculty physicians and pharmacists established a restricted clinic formulary of recommended prescription drugs. The formulary was designed to encourage value-based prescribing that is both resource-conscious and consistent with published guidelines. The formulary lists the medications and dosages that are approved for prescribing and the prices per unit. Within drug classes, preferred medications are highlighted and guidance on first and second line treatment regimens is provided. Drug selections are based on criteria of patient need, drug efficacy and availability, and the total cost of treatment.

The key to clinician adherence has been in making the formulary easily accessible to prescribers at the point-of-care through a searchable and editable online and mobile application, called the EHHapp, which was created by a team of medical students at the clinic (Figure 2). A more complete description of the application and its specifications has been previously published by Finkelstein et al.[16] Clinicians and trainees are frequently reminded to download the mobile application onto their smartphones and to consult it before finalizing prescriptions. Although data on provider application downloads is not collected, informal feedback suggests that the vast majority of providers find the application very useful and refer to it often during clinic hours. The application displays each drug with a price per unit and a relevant preferred prescribing guideline in a user-friendly format. Prices are based on estimates provided by our partnering pharmacy. As an additional check, student volunteers and the clinic's faculty director also perform weekly chart reviews to identify and discuss off-formulary medications that are non-essential, cost-prohibitive, or lack sound evidence.

Figure 2. Screenshots of formulary mobile application

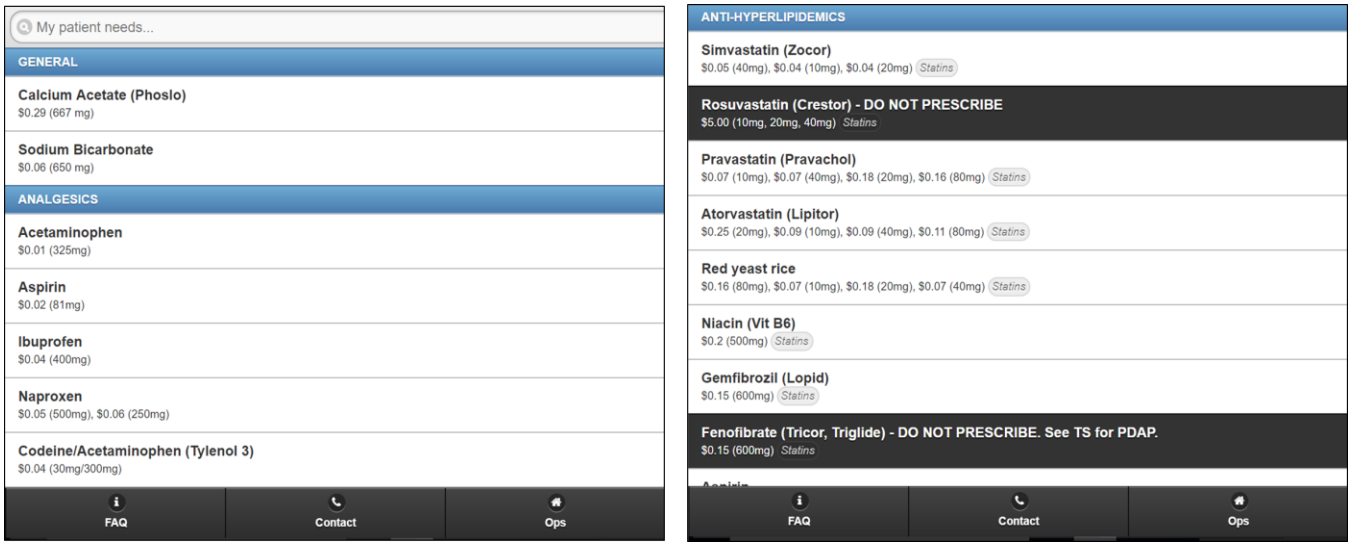
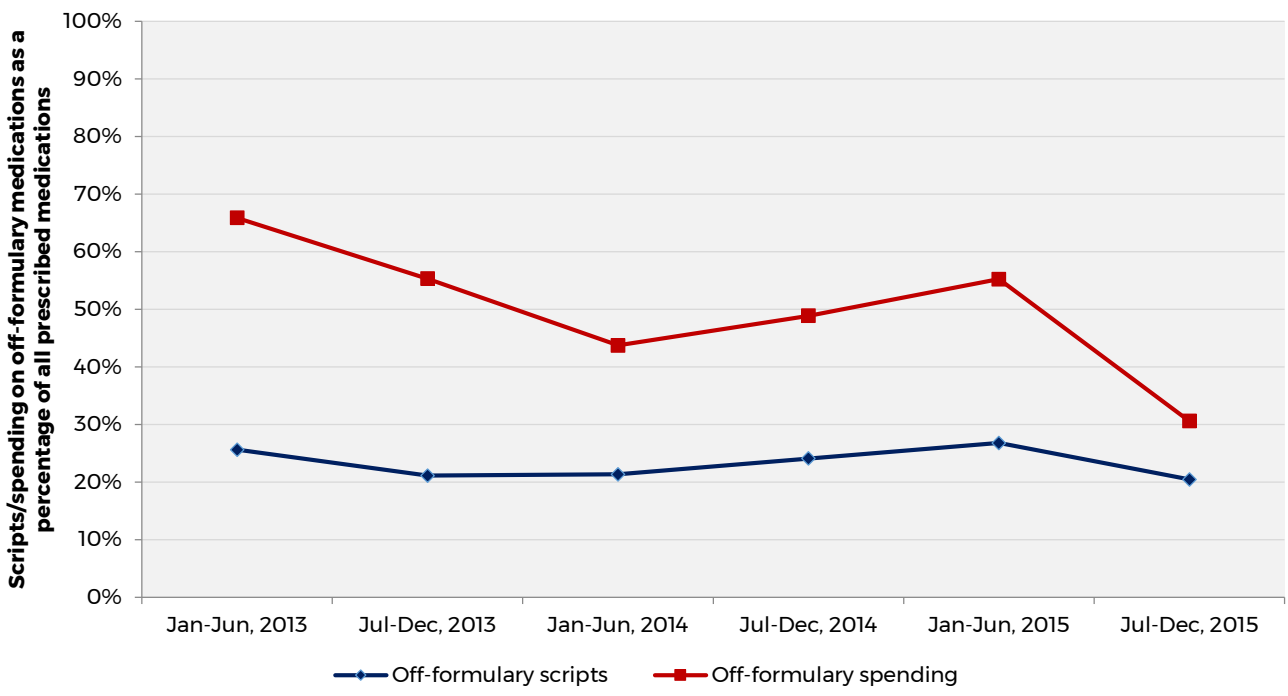


Figure 3. Trends in off-formulary prescribing practices and expenditures



For a formulary to remain useful over time, it is crucial that there are mechanisms in place to revise it in response to changes in prescribing practices and guidelines, patient needs, cost and comparative-effectiveness literature. In our clinic, the task of keeping the formulary current has become a unique opportunity for medical education. Under the advisement of pharmacists and physicians, a task force of medical students updates formulary drug prices quarterly and revises prescribing guidelines as necessary.

Figure 3 presents trends in off-formulary prescribing and spending since the formulary was implemented in 2013. Data was provided from the clinic's partnering pharmacy and was decoupled from any patient-specific information. Because data was not available for the years before the application was launched, the immediate effect of the intervention cannot be quantified. However, since the point-of-care mobile application was mobilized in 2013, clinician and trainee adherence to the formulary has increased, with four out of every five scripts dispensed for on-formulary medications. While the clinic's off-formulary spending still represents a significant share of all prescription drug expenditures, a downward trend has been observed, likely driven by iterative efforts to optimize formulary drug selections and improve clinician adherence. In 2013, 66 percent of all prescription drug spending went toward off-formulary medications compared to 31 percent in 2015.

Utilization of Prescription Drug Assistance Programs to Access Medications at Low or No Cost

Since 2012, our clinic has utilized Patient Drug Assistance Programs (PDAPs) to acquire medications that would be cost-prohibitive to purchase directly from local pharmacies. These programs are sponsored by pharmaceutical manufacturers, and typically provide medications at no cost to low-income or uninsured patients. Patients must apply separately for each medication, and every PDAP has specific income, residency status, and insurance status requirements. Databases such as www.rxassist.org and www.needymeds.org can be used to search for available PDAPs and to determine whether a patient is eligible for the program. If a patient's PDAP application is approved by the drug company, he or she is enrolled in the PDAP program for one year and is often eligible to receive a set number of refills over the enrollment period.

Table 1. Annual value of four medications obtained through prescription drug assistance programs

Medication	Price per unit/ tablet[1]	Units/tablets received every 90-days	Number of patients enrolled	Calculated annual value[3]
Fluticasone/salmeterol 250/50 inhaler	$264	3	4	$12,672
Sitagliptin	$11	90	2	$7,920
Sildenafil	$45	30	4	$21,600
Alprostadil	$120[2]	2	3	$2,880

[1] Prices obtained from two different pharmacies that are accessible to our patients
[2] Price for two prefilled 10mcg vials
[3] Assumes that enrolled patients are eligible for three refills each year

Currently, 20 of our patients receive medications through 23 active PDAP applications. Commonly requested medications include fluticasone/salmeterol, sildenafil, alprostadil, and sitagliptin. These PDAP-sponsored medications represent a considerable source of cost-savings for the clinic (Table 1). For example, four patients are currently enrolled in PDAP programs for fluticasone/salmeterol, and each is entitled to receive an initial 90-day supply (3 inhalers) and three refills within one year of enrollment. The unit price of a fluticasone/salmeterol 250/50 inhaler from a nearby pharmacy is $264.86. Consequently, the amount the clinic saves each year by procuring inhalers for these four patients through a PDAP program totals $12,713.

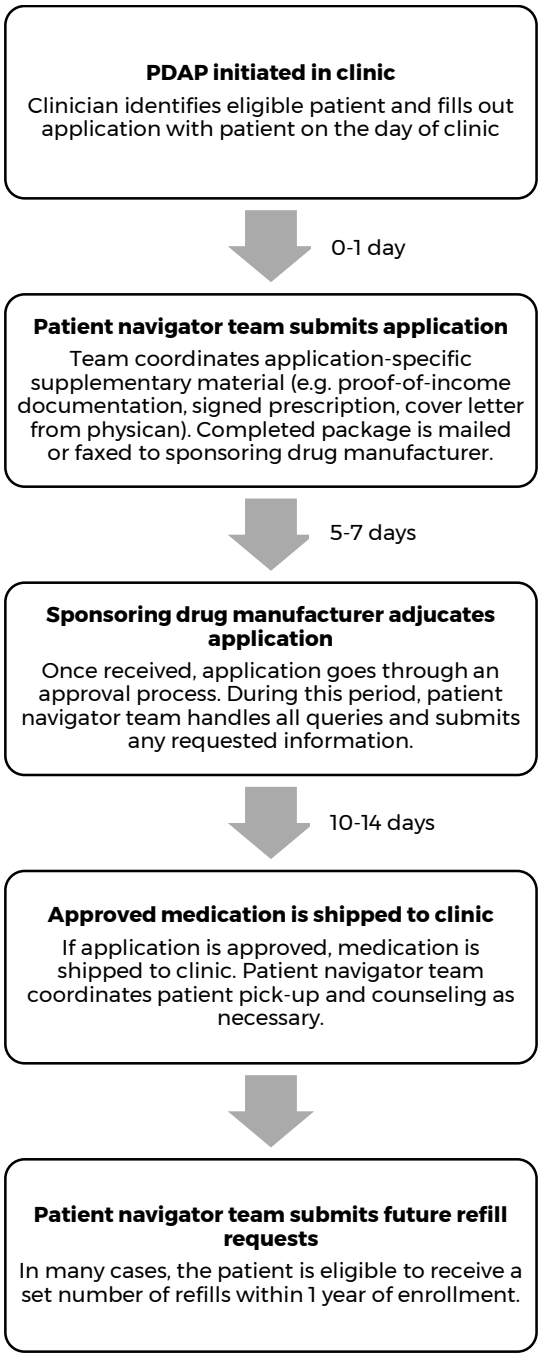
The process of applying for a PDAP can be complicated, especially for the bulk of our patients who have limited English proficiency and health literacy. At a minimum, each patient and his or her prescriber must complete a lengthy application, provide documented proof-of-income, and have the ability to fax or mail the paperwork to the sponsoring manufacturer. A team of medical students that acts as patient navigators, facilitating communications and paperwork between the patient, the clinical care team, and the sponsoring drug manufacturer, is essential to our PDAP submission protocol (Figure 4). The time from the initiation of a PDAP application to the patient receiving the medication is typically two to three weeks. If necessary, the clinic will cover a one-month supply of the medication to bridge the gap. If an application is denied, the patient navigator team will follow-up with the sponsoring company to determine the reason for rejection. In some cases, the decision is reversed once issues are clarified or paperwork is revised and resubmitted. If the application is denied after follow-up and the medication is essential, the clinic will purchase it directly through a pharmacy.

For a clinic interested in implementing a PDAP program, there are several important considerations. First, PDAPs are only available for select medications, and patient eligibility for those programs that are available must be evaluated on a case-by-case basis. Second, there are cases in which it may be more efficient for clinics to purchase medications rather than relying on PDAPs. Each PDAP application requires a significant investment of time and effort. Clinics, especially those that are short-staffed, should weigh the value of time spent on an application against the cost of the drug at a pharmacy. Our clinic, for example, generally initiates PDAP applications for long-term medication regimens. Rarely do we apply for a PDAP-sponsored drug if the pharmacotherapeutic will be used for less than three months or if the therapeutic benefit is questionable. There are exceptions: for patients that require a therapeutic trial of a highly expensive drug, often for a rare but complicated illness, a PDAP-sponsored therapeutic may be the only financially feasible option. The drug etanercept, which can be used for disabling rheumatologic diseases such as ankylosing spondylitis, is an example of a medication that we would opt to procure through PDAP, even for a therapeutic trial. In general, however, for patients beginning a treatment regime for the first time or for medications prescribed on a short-term or as-needed basis, we favor pharmacy purchases.

Procurement of Wholesale Diabetes Testing Supplies

In addition to prescription drugs, durable medical equipment such as self-monitoring supplies,

Figure 4. Flowchart of prescription drug assistance program (PDAP) application process



splints, and ambulatory aids can add considerably to clinic costs. For our clinic, blood glucose testing supplies are a major expense. Every year, 35 to 60 patients in our panel suffer from diabetes and the majority need to test their blood glucose levels twice daily. Until 2013, patients were sent individually to a nearby pharmacy with a prescription or voucher for glucose meters, blood glucose test strips, lancets, and syringes. In total, blood glucose testing supplies cost our clinic $7,540 annually and represented approximately 23 percent of total pharmacy spending. The cost of blood glucose test strips alone totaled $5,957.

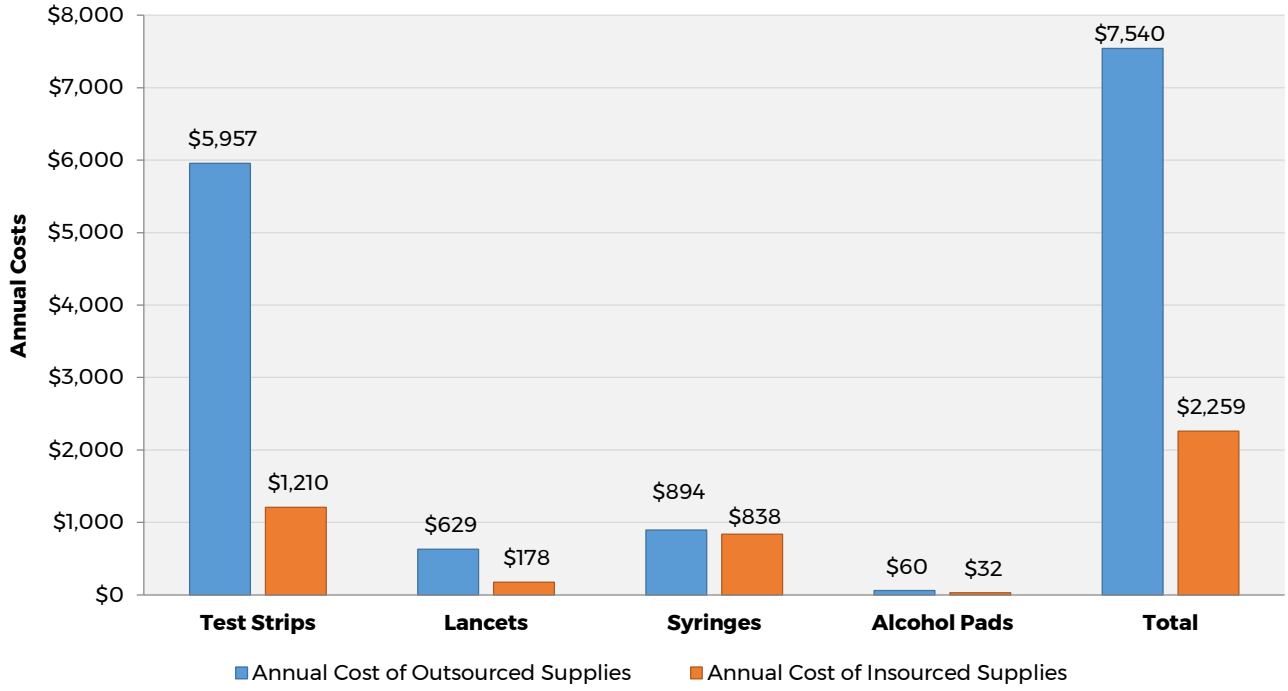
In 2013, our clinic began purchasing these supplies in bulk directly from a wholesale vendor and dispensing them on-site. The switch generated significant cost-savings. The vendor stocked test strips at a significantly lower cost than the third-party pharmacy and was willing to donate free glucose meters with each bulk order of test strips. By sourcing all blood glucose testing supplies from the wholesale vendor and dispensing them on-site, we reduced annual pharmacy spending by $5,282, or 16 percent (Figure 5). Sourcing from a wholesale vendor also saves our patients a trip to an offsite pharmacy that can pass on an indirect cost-savings to the patient who may require public transportation or time off work to obtain supplies during pharmacy operating hours.

This intervention represents a useful supply-chain model that can be applied to other medical supplies that may or may not require prescriptions for dispensation. Nonetheless, there are challenges that a clinic should consider before implementing an on-site distribution system. Secure storage of the supplies must be feasible. Clinics must also ensure that they have sufficient trained personnel to distribute supplies on various cycling schedules, provide appropriate counseling on the correct use of supplies, track inventory, and re-order supplies as necessary.

Conclusion

Many free clinics see pharmacy expenditures as necessary investments to mitigate one of the biggest obstacles to health for individuals without insurance and avoid the complications of untreated or sub-optimally treated acute and chronic illnesses. However, for resource-limited and free clinics with drug coverage plans, the cost of pharmaceuticals and medical supplies represents a significant financial burden. Our student-run free clinic has implemented several approaches to reduce spending through quality-focused, resource-conscious mechanisms that uphold rather than compromise a high standard of patient care. Internal approaches such as a restricted formulary

Figure 5. Annual savings of blood glucose testing supplies obtained from wholesale vendor (insourced supplies) versus external pharmacy (outsourced supplies)



make costs transparent and easily comparable to discourage "knee-jerk" prescribing. The mobile platform we have developed to make this information available at the point-of-care can also be leveraged for many other applications, particularly in hospital wards and ambulatory care sites. External approaches such as utilization of PDAPs and procurement of supplies through competitive vendors can also result in dramatic cost-savings. Outside of clinical settings that serve the uninsured, similar methods may benefit patients with large medication co-payments and out-of-pocket expenses for medications and supplies. We present these strategies as compelling resources for clinics seeking to implement their own drug coverage programs and for clinics that serve financially-vulnerable communities with limited prescription drug access.

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Disclosures

The authors have no conflicts of interest to disclose.

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