

1 **Title:** Decreasing Medication Delays: Maximizing the Efficiency of Patient Assistance Program Applications
2 Through an Electronic System at a Student-Run Free Clinic

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1 **ABSTRACT.**

2 Patient outcomes are highly dependent on the accurate and timely receipt of medications. Patient assistance
3 programs (PAPs) provide key medications to uninsured patients at little to no cost. In Texas and our county,
4 nearly 1 in 5 people are uninsured. Approximately 3,500 uninsured patients over the past year have received
5 care from our clinic. PAP applications require various administrative steps to obtain approval for medication
6 assistance, resulting in delays for patients to receive their medications. To combat these delays, we
7 implemented a new electronic system, which has significantly decreased all administrative steps in completing
8 applications.

9 **Key Words:** Medically Underserved Area, Vulnerable Populations, Student Run Clinic

10

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1 "I can barely breathe when I walk, and I can't afford my inhaler," said one patient at our student-run free clinic.
2 Time after time, we listen to our patients' struggles and try our best to comfort them, as many of them manage
3 co-morbid, chronic conditions, but there is only so much we can do as students.
4

5 In 2019, more than 20% of Americans were unable to obtain prescription drugs due to excessive cost, a
6 substantial cause of uncontrolled health conditions across all patient populations.¹ The combination of
7 unregulated prices from pharmaceutical companies and limited patient access constitutes a public health crisis.
8 To mitigate this crisis, patient assistance programs (PAPs) are sponsored by pharmaceutical manufacturers to
9 provide free medications for patients that meet specific criteria.²
10

11 We realized that students can alleviate some of the financial burden patients endure by guiding our patients
12 through the PAP application process. Applications require various administrative steps, resulting in medication
13 delays (see Picture 1).
14

15 Last year, an analysis of 100 randomly selected paper applications from 4/9/16 to 11/17/21 demonstrated that
16 it takes an average of 62 days for an application to be approved at our clinic. More specifically, it took an average
17 of 4 days to obtain patient signatures, 19 days to obtain prescriber signatures, 30 days to obtain proof of income
18 (POI), 43 days to fax the application to the pharmaceutical company, and 105 days to receive rejection
19 status. "When we saw the results of this analysis, my jaw dropped. I could not believe how long it took to get
20 our patients life-saving medications. We knew there was some way to expedite the process, and our team was
21 dedicated to discover a way to achieve so."
22

23 To decrease the processing time of applications, we implemented a streamlined, secure, and electronic-based
24 platform in November 2023. With Adobe Editor and Frevo applications, we transformed electronic PDF
25 applications to online forms. Student and faculty volunteers can access these forms on our clinic's main website.
26 The forms were created so that patients and providers only provide their signature once. Moreover, when the
27 volunteer is prompted to select an attending name as the prescriber, their licensing information (such as NPI
28 number, DEA number, and clinic address) is automatically populated. This auto population feature not only
29 decreases the time needed to fill out an application, but it also ensures that all fields are completed. If the patient
30 has no income, there is an option to generate an automatic no income letter, which includes the patient's
31 signature and the clinic's letterhead. When the volunteer submits the complete application, it is automatically
32 uploaded to our secure Teams Channel, which is accessible for all volunteers of the clinic and allows us to fax
33 the application within several minutes.
34

35 After three months of utilizing this electronic system, we analyzed 100 randomly selected electronic applications
36 from 11/8/22 to 2/23/23, which revealed an average of 15 days to obtain approval, a 75.8% decrease from the
37 amount of time it took for approval before implementation of the electronic system. Additionally, all applications
38 received a patient signature on the same day of application initiation. It took an average of 1 day to obtain
39 prescriber signature, 3 days to obtain POI, 6 days to fax the application to the pharmaceutical company, and 15
40 days to receive rejection status. All administrative steps significantly decreased with the implementation of the
41 new system ($p < .01$).

1

2 The electronic system has significantly expedited the approval and overall process of applications. Automating
3 no income letters for eligible patients has decreased the time required to obtain POI. Likewise, online
4 accessibility of applications has decreased time required to fax applications to companies. "It has been a
5 tremendous achievement to see that our electronic system has helped patients get their medications faster,"
6 said one of our student volunteers who helped create the electronic system. Obtaining POI (for patients who
7 have an income) and faxing applications are primary causes of delays, and the main reason for rejection is
8 missing POI. Therefore, we plan to implement a new, faster method of obtaining POI where we text patients a
9 link to safely upload documents. Moreover, we hope to automate faxing complete applications when submitted.
10 Lastly, we plan to create more electronic applications for additional medications.

11

12 "We really try our best to provide patients with as many resources as possible, and these applications have not
13 only saved our patient's a large amount of money, but that have also saved their lives. I feel extremely fortunate
14 to be a part in a position where I am able to help the lives of our underserved community," exclaimed one of the
15 student volunteers in charge of handling PAPs. Our goal is to share our findings with clinics utilizing PAPs and
16 encourage others to implement similar interventions into their practices, ensuring continuity of patients'
17 medication regimes and better management of their conditions, ultimately improving the healthcare of
18 vulnerable populations. As MD/MPH students and future providers, we seek to provide accessible and quality
19 healthcare that addresses the critical role of social determinants of health and optimizes patient care.

20

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1 **SUMMARY - ACCELERATING TRANSLATION**

2

3 Why Patients Wait Long for Medications from Patient Assistance Program Applications from Pharmaceutical
4 Companies and Interventions to Decrease Wait Times

5

6 Many patients need medications to live. Thus, their health and wellbeing often depend on their medications.

7 Patient assistance programs (PAPs) give uninsured and underserved patients medications that they might be

8 able to afford on their own. However, it is often difficult to be approved by these programs. The program's

9 applications require many administrative steps, which results in delays for patients to receive their medications.

10 Last year at our student-run free clinic, it took an average of 62 days for an application to be approved. To

11 address this problem, we have implemented an electronic-based platform to complete these applications, which

12 has decreased the approval time more than 75%. Our goal is to share our findings with similar clinics utilizing

13 PAPs and encourage others to use them into their practices. As MD/MPH students and future providers, we

14 want to increase access to quality healthcare for patients who are most in need.

15

Accepted, in-progress

1 **REFERENCES.**

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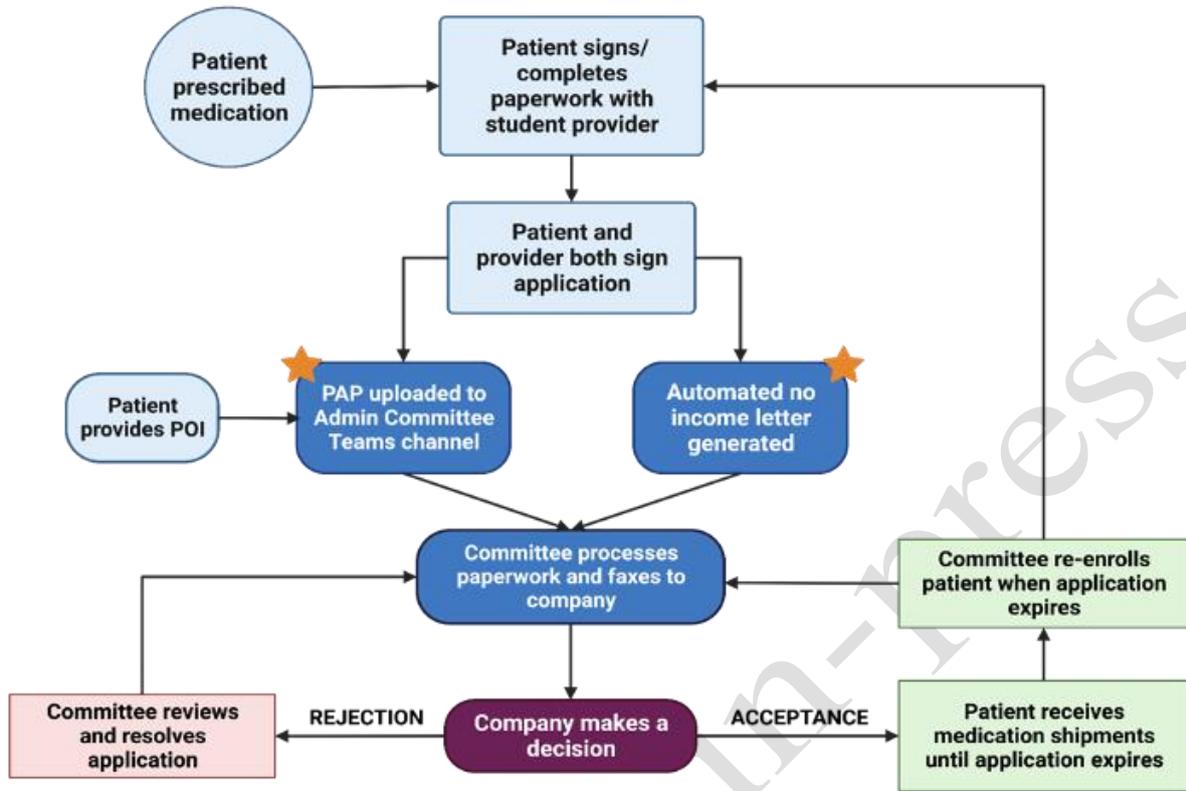
3 1. Gellad WF, Huskamp HA, Li A, Zhang Y, Safran DG, & Donohue, JM. Use of prescription drug samples and
4 patient assistance programs, and the role of doctor-patient communication. J Gen Intern Med. 2011;26(12):
5 1458–1464.

6 2. Colon C, Salas P, Díaz M, Cotto R, Martínez I, Hale GM et al. Patient assistance programs and technology
7 in medication adherence. Innov Pharm. 2020;11(2).

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1 FIGURES.



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