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Impact of Pharmacy Intervention on Prior Authorization Success and Efficiency at a University Medical Center

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ABSTRACT

BACKGROUND: Prior authorizations (PAs) may improve appropriate use of prescription medications. Despite potential savings for health insurance plans, the PA process is time consuming for the ordering provider, pharmacy, and patient. The UC Davis Health System (UCDHS) has created a centralized pharmacy-run clinic PA process.

OBJECTIVE: To compare the mean PA processing time between the new centralized clinic and usual care and provide secondary endpoints for PA approval rates, time to prescription fill, time to prescription pick-up, total staff time, and estimated labor costs.

METHODS: This is a prospective observational study comparing sequential PA requests at the UCDHS centralized clinic (intervention) and other UCDHS clinics (usual care) between January 1, 2014, and December 31, 2014. The Cochran-Mantel-Haenszel test was used to compare dichotomous outcomes (approval/denial rates) between the 2 groups, controlling for insurance type. A generalized linear model was applied for comparing the continuous outcomes (PA process time, time to first fill, time to pick-up, and cost) with insurance type as covariate.

RESULTS: For the intervention group, 47 PAs were evaluated, and 77 PAs were evaluated in the usual care group. The average PA process time was 0.53 days for the intervention group versus 7.02 days for usual care ($P<0.001$), and the PA approval rate was 93% for the intervention group versus 68% for usual care ($P<0.002$). The mean time to fill was 2.49 days and 5.52 days for the intervention and usual care clinics, respectively ($P=0.02$). The pick-up percentage was 75% versus 52% for intervention and usual care, respectively ($P<0.001$). The intervention clinic spent a significantly lower mean time processing PAs (15 minutes vs. 64 minutes) compared with the usual care clinics ($P<0.001$). It is estimated that the mean total labor cost per PA at the intervention clinic was $11.50 compared with $37.50 for the usual care clinics ($P<0.001$).

CONCLUSIONS: Pharmacy-led interventions in PA processing resulted in a statistically significant benefit in improving time to PA approval, time to first fill, and time to pick-up.

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What is already known about this subject

- Prior authorizations (PAs) can help ensure appropriate use of prescription drugs, but the process may be time consuming for the prescriber, staff, pharmacist, and patient.
- In 2006, the direct and indirect costs of PAs were estimated to be between $23 and $31 billion.
- In 2011, the American Medical Association recommended a standardized electronic PA process, but so far little has changed with the process.

What this study adds

- A centralized, pharmacist-led PA process at a university medical center had significantly higher approval rates and improved prescription pick-up when compared with usual care.
- In addition, the centralized, pharmacist-led PA process had significantly lower labor costs, lower time to approval, and fewer delays in prescription pick-up, indicating that it may be a more efficient process when compared with usual care.

The Centers for Medicare & Medicaid Services (CMS) have projected that prescription drug spending increased 5.2% in 2014 with expected growth of 6.5% annually from 2015 to 2022.[1] Prior authorizations (PAs) for prescription drugs provide a means for health insurance plans to review appropriateness of medical treatment in order to ensure appropriate use of medications and cost containment for third-party payers. Despite potential savings for health insurance plans, the PA process is time consuming for the ordering provider, pharmacy, and patient.[2-7] PAs typically require medical justification, which includes indication, documentation of previously prescribed therapies, and additional medical justification for treatment. Because of the documentation required, long wait times on hold with insurers, and the lack of easy access to standardized PA requirements, there are often delays in filling prescriptions that require PAs. For commercial health plans and Medicaid, processing time for PAs has been estimated to be 6.3 days and 2.1 days, respectively.[6] Additionally, delays in obtaining coverage may prolong initiation of therapy for critical medications.[4,7]

The PA process has economic consequences elsewhere in the system as a result of the administrative burden and time required for providers and employees at medical offices to process PAs. A 2006 survey of 900 physician practices found that an average physician practice used 1 hour of physician time, 13.1 hours of nursing time, and 6.3 hours of clerical time to complete PAs in a medical office each week. Including direct and indirect costs, the projected national cost for PAs was between $23 and $31 billion in 2006.[3] A study published in 2013 examined 9 primary care practices in New York and Pennsylvania and estimated an annual cost per full-time equivalent physician for PA-related activities to be $2,161.75

to $3,430.35.[5] Despite calls for changes to the PA system from professional organizations and state legislatures, the PA process remains complicated, inefficient, and time consuming.[2]

At the UC Davis Health System (UCDHS), a new resource was developed to streamline the PA process using pharmacists and pharmacy technicians at a centralized "refill clinic." Pharmacy technicians and pharmacists at the refill clinic follow a standardized process for managing PAs using a protocol and collaborative practice agreement to authorize prescription orders. Many clinics still follow a "usual care" process, where individual clinics are responsible for the PA workflow, employing medical assistants, nurses, and physicians to complete PAs.

The purpose of this study was to compare the centralized pharmacist-led PA process with the usual care process. The primary outcome was the mean PA processing times with each system. Secondary endpoints included PA approval rates, time to prescription fill, time to prescription pick-up, total staff time, and estimated labor costs.

Methods

This was a prospective observational study comparing the pharmacy benefit PA processes at the UCDHS Refill Clinic (intervention) and 3 UCDHS Primary Care Network (PCN) clinics (usual care) between January 1, 2014, and December 31, 2014. The UCDHS Refill Clinic services primarily hospital-based primary care clinics and the PCN is a network of UCDHS-affiliated primary care clinics. The institutional review board at the University of California, Davis, determined that this quality assurance study was exempt from review.

Only outpatient medications that required a PA for a medication prescribed in a primary care environment were evaluated in each group. Payer mix was the same for the PCN clinics and the refill clinic and the access to PA requirements was similar between the 2 models. Specialty medications (e.g., biologics and oncology medications) were not included in this study, and insurance type was controlled for in all statistical analyses. While some variation may exist in the medications that were prescribed in each environment, it was assumed that the insurance type was a more significant factor than medication requested.

In the usual care clinic model, clinic staff (nurses, medical assistants, and physicians) initiated and completed the PA process once notified by the pharmacy or patient that a PA was necessary. The implementation pathway and responsible individuals can vary between health system clinics, but all used electronic health records and submitted documents directly to the insurance or pharmacy benefit manager. The PA was dependent on a staff member entering the PA information into the electronic health record and communicating the necessary information to the health plan. No individual had dedicated time to fulfill this activity, and it had to be accomplished throughout the day in addition to regular clinic activities.

The refill clinic employed the following standardized approach: PA requests were automatically transmitted from the participating clinics to a section of the electronic health record where a pharmacy technician gathered initial information. This review included evaluating the patient's chart for indication of therapy, type of insurance, opportunities for therapeutic interchange, and other agents tried and failed. Once information was gathered, a pharmacist followed a collaborative practice agreement for therapeutic interchange, or the pharmacy technician submitted the completed PA to the health insurance for review.

Statistical Analysis

An a priori power calculation was performed and initially determined that 20 PAs in each group would be necessary to detect a clinically significant difference of more than 23 hours in processing time between the 2 systems. Given limited preliminary data on the variance of this outcome, investigator judgment and literature was used to estimate that 95% of outcome times would fall within a range of about 4.4 days, suggesting a standard deviation of 1.1 days (assuming an approximately Gaussian distribution). However, it was felt that the standard deviation could be approximately 40% higher, given the extreme variation observed in an indirectly relevant study of HIV clinic patients in Alabama.[6] To accommodate these variations and to attain 80% power under a 2-sided test (with alpha = 5%) with this variance, our a priori target sample size was estimated to be 40 per group.

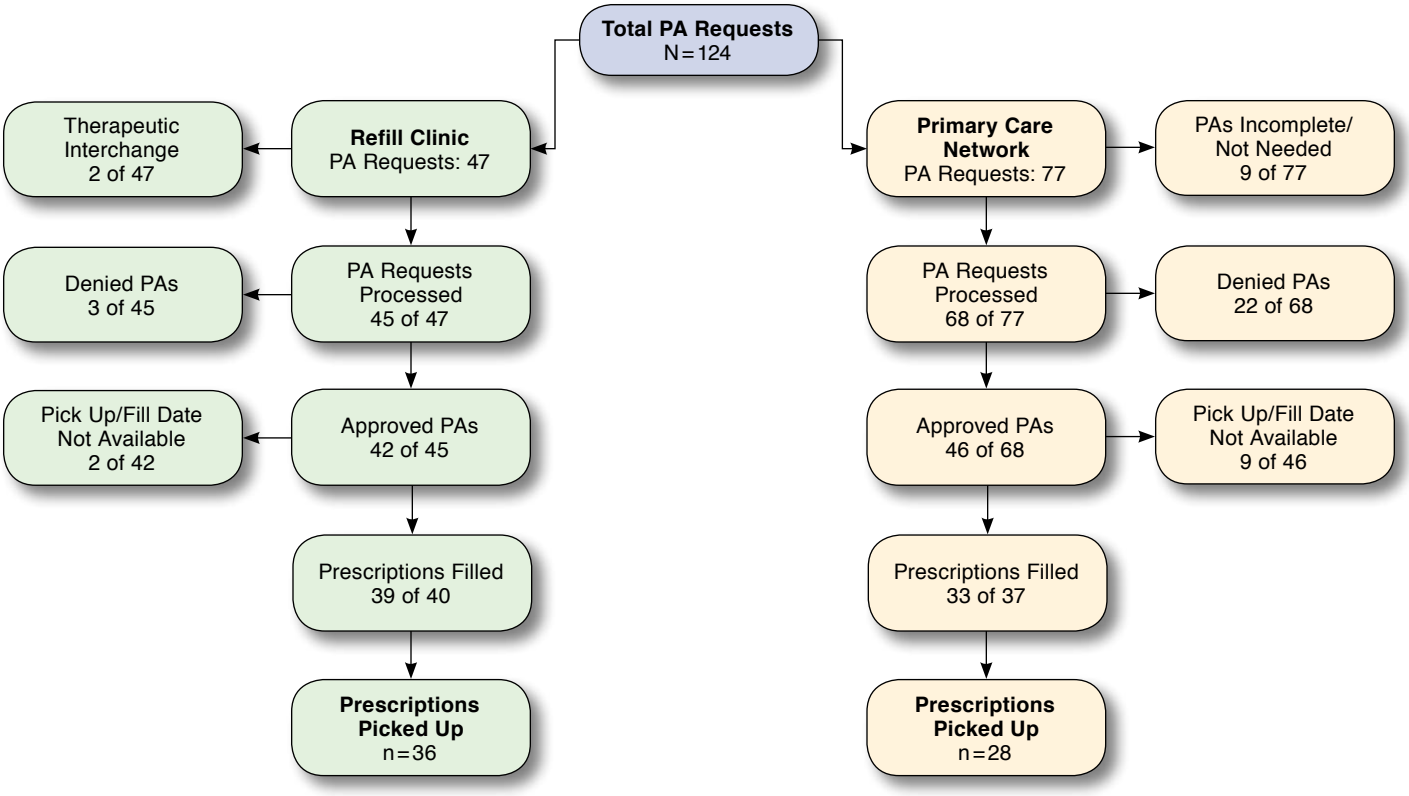
The Cochran-Mantel-Haenszel test was used to compare dichotomous outcomes (approval/denial rates) between the 2 groups, controlling for insurance type. A generalized linear mixed model with heteroscedasticity-robust sandwich estimator was applied for comparing the continuous outcomes (PA process time, time to first fill, time to pick-up, and cost) with insurance type as covariate.

Data Collection

PAs at 3 representative usual care model clinics and at the centralized refill clinic were collected prospectively using a standardized data collection sheet. Trained staff members at each site systematically collected data that included the date of initial PA request, date of approval, and staff time spent completing the PA request. PA requests that were submitted but did not require a PA, therapeutic interchange, patients younger than aged 21 years, prisoners, pregnant women, and patients using mail order were excluded from the analysis. PA data were sequentially collected between January 1, 2014, and December 31, 2014, until at least 40 PAs were completed in each group.

A time-motion study assessed the total time per PA spent by each employee involved in the process with the exception of physicians. Physician time was determined by self-report through a survey of physicians at participating usual care

FIGURE 1 Study Inclusion Flowsheet



PA = prior authorization.

clinics. The value assigned to each employee's time was determined from health system data and included benefit costs. Time to fill was determined by comparing the date the prescription was ordered by the prescriber with the time of first fill at the patient's pharmacy. To determine fill and pick-up dates, researchers called the patient's pharmacy to determine the exact fill date (after successful completed PA) and pick-up date. If time to fill was greater than 30 days, the prescription was considered not filled. Time to pick-up was determined by comparing the date the prescription was ordered by the prescriber with the time of pick-up at the patient's pharmacy. If time to pick-up was greater than 30 days, the prescription was considered abandoned. The PA process time (the date PA request was electronically received to date of third party decision) was captured on the data collection sheet from the electronic health record.

Results

For both groups, 124 PAs were evaluated, with 47 PAs in the refill clinic group and 77 in the usual care clinics group, respectively (Figure 1). The majority of the exclusions in the PCN (usual care group) were related to PA requests submitted that did not require a PA (9 requests) and pick-up or fill data not available (9 requests). The majority of exclusions in the refill clinic (intervention group) were from therapeutic interchange (2 changes) and incomplete pick-up or fill data not available (2 incomplete requests). Insurance type was not statistically different between the refill clinic and usual usual care clinics, with the majority of insurance being 4 different commercial plans (71% and 85%, respectively, $P = 0.094$) and 8 Medicare Part D plans (29% and 15%, respectively, $P = 0.094$). The majority of PA requests were for medications used to treat similar chronic diseases such as asthma, diabetes, erectile dysfunction, pain, heartburn, and psychiatry, but the actual medications may have varied.

The primary and secondary endpoints are shown in Table 1. The time necessary to complete the PA was significantly lower in the refill clinic than in the usual care clinics (0.53 days vs. 7.02 days, respectively, $P < 0.001$). The average PA approval rate was 93% for the refill clinic and 68% for the usual care clinics ($P = 0.0018$). The refill clinic spent a significantly lower mean time processing PAs (15 minutes vs. 64 minutes) compared with the usual care clinics ($P < 0.001$). Based on staff time

TABLE 1 Outcome Comparison

	Refill (n=45)						PCN (n=68)						*P* Value[a]	Estimated Between Group Difference (95% CI)
	N	%	Mean	SD	Median	Range	N	%	Mean	SD	Median	Range		
Average PA approval rate (%)	45	93					68	68					0.0018	26.00 (12.00-40.00)
Average PA process time (days)	45		0.53	0.8	0.0	(0-4)	62		7.02	12.8	4.0	(0-81)	0.0001	6.72 (3.41-10.02)
Average time to fill (days)	39		2.49	5.6	1.0	(0-28)	31		5.52	6.59	4.0	(0-27)	0.0230	3.33 (0.52-6.73)
Average time to pick-up (days)	35		4.26	7.0	2.0	(0-29)	26		8.08	8.15	6.0	(0-29)	0.0290	4.60 (0.40-8.71)
Prescriptions picked up (%)	39	92					37	76					0.0562	17.00 (-0.40-34.00)
Total staff time spent on PA (minutes)	45		15.3	5.6	14.0	(3-27.5)	19		63.8	41.6	52.0	(18-185)	<0.0001	48.74 (29.07-68.40)
Cost/PA ($)[b]	45		11.5	4.2	10.5	(2.3-20.6)	19		37.5	25.5	30.2	(12-122)	<0.0001	26.13 (14.05-38.21)
Commercial insurance	31	70					56	85						
Medicare Part D	13	30					10	15					0.0940	

[a]P values were controlled for insurance type using the Cochran-Mantel-Haenszel test for "PA approval rate" and "Prescriptions picked up rate." For continuous outcomes, P values and 95% CIs were estimated using the generalized linear mixed model with heteroscedasticity-robust sandwich estimator. The chi-square test was used to determine insurance differences between the 2 groups. Commercial insurance included 4 plans, and Medicare Part D included 8 plans.

[b]Cost/PA ($) was estimated based on average salary and benefits for the employee involved in the PA.

CI = confidence interval; PA = prior authorization; PCN = primary care network (usual care); Refill = refill clinic (intervention); SD = standard deviation.

dedicated to this process, it is estimated that the mean total labor cost per PA at the refill clinic was $11.51 compared with $37.50 for the usual care clinics ($P<0.001$). The mean time to fill was 2.49 days for the refill clinic and 5.52 days for the usual care clinics ($P=0.02$). The mean time to pick-up was 4.26 days for the refill clinic versus 8.08 days for the usual care clinics ($P=0.024$). The prescription pick-up percentage was 92% for the refill clinic versus 76% for the usual care clinics ($P=0.056$).

Discussion

Despite mounting evidence that the PA process is time consuming, costly, and burdensome for medical practices, little has changed to improve this process.[2,3,5] This is the first study to show that a centralized pharmacist-led PA process improves approval rates and significantly reduces time to PA approval for medications prescribed in primary practice sites affiliated with an academic medical center. An organized, central process reduced time spent per PA and subsequently decreased the associated cost per staff member. However, there would be additional costs initially because a centralized PA process would be a new system for most clinic practices and would require an initial investment in personnel. Cost savings from a streamlined PA process could enable other clinic personnel to focus more time on direct patient care rather than the PA process. Whether the staffing costs of a centralized process would be cost saving would depend on how time is used by clinic staff no longer processing PAs.

The American Medical Association described opportunities to streamline, standardize, and automate the PA process in a 2011 white paper.[2] Three steps were outlined to achieve this goal: (1) an electronic process that is standardized across payers; (2) a process that is integrated into the workflow of the physician practice systems; and (3) a process that meets privacy standards for electronic transactions. Similar efforts have been attempted in some states to improve the PA process. However, these efforts have not led to improvements in the PA process for the vast majority of medical practices.[2] A centralized pharmacy-led intervention is one opportunity to improve the PA process. A pharmacist-led process could provide value when a standardized electronic PA process is in effect by streamlining the processing of PAs.

In addition to the improvements noted in approval rate and time to approval, the time to first pick-up was significantly lower in the centralized refill clinic used in this study. As time to fill is decreased, delays to patient care associated with the PA process may be reduced. Shortened time to fill may lead to improved health outcomes through earlier start dates and improved first fill adherence rates. This is potentially significant for medications where obtaining the medication is time sensitive (e.g., antipsychotic medications and antibiotics).[4,7] While not statistically significant, there was a trend toward lower prescription abandonment with the refill clinic process.

Limitations

This study has several limitations to consider. First, this was not a randomized controlled study evaluating the same PAs between 2 groups. It is possible that some of the PAs in the usual care group were different from the centralized process. Because specialty medications were excluded from both groups, delays related to any special requirements for approval (e.g., lab tests and other studies) would not be expected. Second, trained staff documented data points on the data collection sheet, but variations in how they documented the information could exist, and staff may have differentially over- or underestimated their time-motion studies. Third, the patient demographics were not collected, so there may be differences between patient

groups that explain differences in the time to first pick up for each prescription. However, PA approval and denial, as well as time to first fill, are objective measurements that should not be affected by patient demographics. Type of insurance was controlled for in primary and secondary outcomes.

Larger multi-site studies performed in diverse clinic settings are needed to generalize these findings to clinics outside of this academic medical center. In addition, a centralized approach to processing PAs may only be practical in large practices and health systems. Small offices without the demand or resources to develop a centralized process would need to develop and evaluate alternative approaches, which may include dedicated PA staff within the clinic and other streamlined processes.

Conclusions

PAs may reduce health plan expenditures on medications but often transfers administrative costs to health care providers. Previous studies have shown that the PA process is burdensome to medical staff who are pressured to complete PAs in a timely manner. A centralized PA process may improve PA approval rates and time to PA approval, as well as reduce total staff time spent on each PA. This pilot study demonstrates the benefits of a centralized pharmacy-led PA process when compared with usual care at an academic medical center.

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DISCLOSURES

No outside funding supported this study. The authors report no conflicting interests.

Melnikow and Cutler contributed the study concept and design, with assistance from the other authors. Lester, Barca, and She collected the data, and Xin performed all statistical analysis. Cutler was the major contributor to manuscript preparation, with assistance from the other authors.

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