

Reducing after-hours prescription refill requests

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Abstract

Background: It is not convenient or always possible to address parent requests for prescription refills after hours. The primary objective of this quality improvement study was to decrease the number of refill requests received outside of regular business hours. A secondary objective was to reduce the negative effects of call fatigue and related exhaustion for physicians taking calls. **Methods:** Voluntary participation in this quality improvement project was solicited from the Child Neurology Division at a single academic, tertiary, metropolitan children's hospital. Study design was developed from a project charter, fishbone diagram, process map, driver diagram, and plan-do-study-act worksheet. A peer-reviewed letter was mailed to all clinic patient families and signs were displayed in the clinic space as notification of a policy change. A peer-reviewed script was provided to the Children's Mercy Contact Center triage personnel addressing after-hours refill requests. The number of refill requests received during each after-hours call shift was recorded from April 1, 2015, to March 31, 2016, with a primary outcome measure of the monthly number of refill requests. **Results:** Postintervention, the average number of refill requests after hours decreased by 39% from 21 to 11 per month ($p = 0.0055$). **Conclusions:** This simple intervention has promise to limit prescription refill requests made after hours and improve physician quality of life. Continued data collection will help establish the sustainability of the effect made by this intervention. *Neurol Clin Pract* 2016;6:429-432



Medication nonadherence is a growing, multifactorial problem among children with chronic conditions,¹ including neurologic and developmental disorders. Delayed medication acquisition contributes to nonadherence to prescribed regimens.^{2,3} Sometimes urgent requests for refills are received outside of business hours by on-call providers.

After-hours on-call responsibilities have been cited as one of the most stressful aspects of physician responsibilities⁴ and call fatigue contributes to physician burnout.⁵ Child Neurology resident trainees at our institution provide proportionate first-call coverage an average of 7–11 nights per month, from 17:00 to 08:00 hours. This coverage includes fielding calls from all medical facilities and clinic patients' families in Kansas and the western third of Missouri. Call

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shifts can be busy, particularly during winter months. It is not convenient or always possible to address parent requests for prescription refills after hours. Some antiepileptic and tone management medications are controlled substances and require a faxed written prescription, and physicians may be busy concentrating on acute neurologic emergencies.

Patient safety is paramount. As part of a larger effort to foster medication adherence and avoid lapses in pharmacologic management of pediatric neurologic conditions, the primary objective of this quality improvement study was to decrease the number of refill requests received outside of regular business hours. A secondary objective was to reduce the negative effects of call fatigue and related exhaustion for physician trainees.

METHODS

Standard protocol approvals, registrations, and patient consents

This quality improvement project did not involve human research subjects.

Voluntary participation in this quality improvement project was solicited from the Child Neurology Division Clinic Director and Service Line Director at a single academic, tertiary, metropolitan children's hospital (Children's Mercy, Kansas City, Missouri). Study design was developed from a project charter, fishbone diagram, process map, driver diagram, and plan-do-study-act worksheet, with the intervention that follows chosen for its likelihood to lead to change in the primary endpoint in the desired direction, to contribute to unintended effects, and ease of implementation. Prior to the study intervention, refill requests were received and addressed at all hours, including by the on-call physician when received outside of business hours, as defined as Monday through Friday from 08:00 to 17:00 hours.

A peer-reviewed letter (appendix e-1 at Neurology.org/cp) was mailed to all Child Neurology Clinic patients and their families notifying them of a policy change that would limit fulfillment of prescription refill requests to during business hours. Peer-reviewed signs were displayed in the clinic examination rooms at the 2 hospital campuses with Child Neurology Clinics (Adele Hall campus, Kansas City, Missouri, and Kansas campus, Overland Park, Kansas) advertising the policy change. Providers and clinic personnel were encouraged to review the policy change during clinic visits. A peer-reviewed script (appendix e-2) was provided to the Children's Mercy Contact Center triage personnel for use when addressing refill requests received after hours, as defined as between 17:00 and 08:00 hours daily, after implementation of the new policy. Contact Center personnel were encouraged to continue to forward any refill requests they determined to be urgent; for example, when patients were completely out of antiseizure medication. No other changes in policy, prescribing practices, or functionality occurred during the study period. The number of refill requests forwarded on to the physician on-call after hours was logged daily by the postcall physician and monthly data were entered into a Microsoft Excel spreadsheet from April 1, 2015, to March 31, 2016. The primary outcome measure was the number of refill requests received per month. With a skewness level of 12, statistical analysis was performed using the Mann-Whitney *U* test with results reported as median values and the interquartile range (IQR) (25th and 75th percentiles).

RESULTS

The average number of refill requests received per month outside of regular business hours pre-intervention was 21 (range 13–37, median 18, mode 18, IQR 16–22) (figure). The average

Supplemental Data

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Scheduled medication acquisition can improve medication adherence and positively influence patient outcomes.

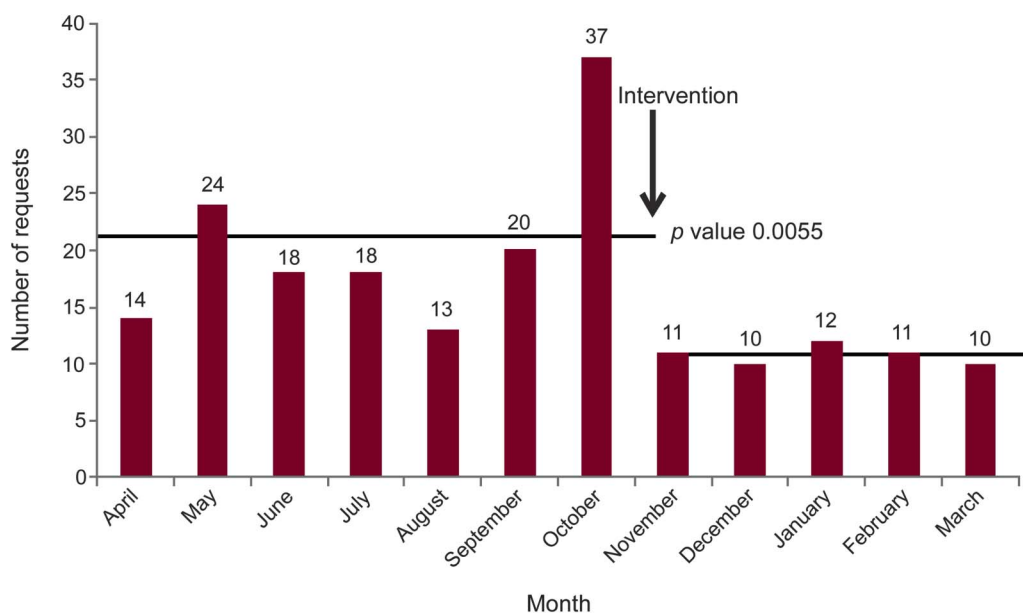
number of refill requests received per month postintervention was 11 (range 10–12, median 11, mode 10 and 11, IQR 10–11), representing a 48% reduction ($p = 0.0055$).

DISCUSSION

With a relatively simply intervention consisting of a written letter, posted signs, and verbal review of the policy change, this study showed an appreciable decrease in the number of refill requests made by parents after hours. Continued data collection will help establish the sustainability of the effect made by this intervention. Scheduled medication acquisition can improve medication adherence and positively influence patient outcomes by potentially preventing neurologic emergencies, emergency department visits, or hospital admission. Future assessment of balancing measures such as patient/family dissatisfaction, emergency department visits, or hospital admission rates as a result of running out of medication, as well as assessment of additional balancing measures including call volume during business hours, will verify the favorability of this intervention. Quality of life assessments of physicians sharing call responsibility will determine if this intervention has resulted in diminished call fatigue aside from anecdotal improvement, thereby preventing physician burnout.

There are some limitations to this study. While data were collected over a full calendar year, covering all seasons, preintervention data were collected during the late spring, summer, and early fall months, while postintervention data were collected during the late fall, winter, and early spring months. It is possible the number of parent requests for refills varies by season. Continued data collection could potentially characterize this behavior. Two additional

Figure Prescription refill requests



Number of prescription refill requests received after hours during the study period. Time of intervention denoted by the arrow. Preintervention and postintervention averages of 21 and 11 requests per month, respectively, indicated by the solid lines ($p = 0.0055$).

Children's Mercy campuses (Northland, East) where neurology patients are sometimes seen were not included in the signage posting, which could have affected the number of refill requests received. Urgency for refill requests was not clearly defined and could have affected the number of refill requests received.

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AUTHOR CONTRIBUTIONS

B. Zuccarelli: study concept and design, acquisition of data, analysis and interpretation of data, draft of manuscript. K.A. Coffman: study supervision, critical revision of manuscript for intellectual content.

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DISCLOSURES

B. Zuccarelli reports no disclosures. K.A. Coffman serves on the editorial board of *Journal of Child Neurology*. Full disclosure form information provided by the authors is available with the **full text of this article at Neurology.org/cp**.

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