JPPT | Single Center Retrospective Study

Evaluation of a Quality Improvement Process for Health-System Retention of Long Acting Growth Factors Prescriptions in the Pediatric Oncology Population

Alexis Hamelink, PharmD; Joshua Elder, PharmD; and Kyle Harwood, PharmD

OBJECTIVE Granulocyte-colony stimulating factor (GCSF) products are often used in pediatric patients with malignant diagnoses to reduce the time that the patient is neutropenic. Long-acting GCSF products have been shown to be non-inferior to daily dosing of GCSF products, and are becoming more desired by patients and families. Insurance companies often require a prior authorization prior to approving the use of the long-acting GCSF products. This process has proven challenging leading to treatment delays and missed doses. The purpose of this study is to evaluate a quality improvement process for the prescribing and dispensing of long-acting GCSF to better serve pediatric patients within a single health care system.

METHODS This is a single-center, retrospective chart review with the purpose of collecting data to compare prescription retention before and after the improvement intervention. Study timeline includes all doses of long-acting GCSF prescribed for pediatric oncology patients between June 2020–June 2021 compared with July 2021–March 2022. On June 30, 2021, educational information was provided to the appropriate stakeholders regarding the change in practice.

RESULTS A total of 31 patients were included in the review, with 22 patients prior to the intervention (115 prescriptions), and 9 patients after the intervention (43 prescriptions). There was a 37.8% increase in health system prescription retention (15.7% vs 53.5%).

CONCLUSIONS Pharmacist directed long-acting GCSF prescription destination and a dedicated prior-authorization team led to an increase in prescription retention for patients regardless of payer mandated outpatient pharmacy.

ABBREVIATIONS GCSF, granulocyte-colony stimulating factors

KEYWORDS granulocyte-colony growth factors; long acting granulocyte-colony growth factors; peg-filgrastim; prescription retention; quality improvement

J Pediatr Pharmacol Ther 2024;29(2):175–179

DOI: 10.5863/1551-6776-29.2.175

Introduction

Granulocyte-colony stimulating factor (GCSF) products are used to stimulate the production, maturation, and activation of neutrophils. In pediatric patients with malignant diagnoses, the use of GCSF products can reduce the time that the patient is neutropenic, which can reduce the risk of developing potentially life-threatening infections.[1] Long-acting GCSF products have been shown to be non-inferior to daily dosing of GCSF products, and are becoming more desired by patients and families due to ease of use and less frequent injections.[2] Insurance companies often require a prior authorization prior to approving the use of the long-acting GCSF products, and also mandate specific dispensing locations. These factors lead to barriers to coordination of care for patients receiving chemotherapy in an inpatient setting who need to administer GCSF immediately post discharge. This process has proven challenging and time consuming, which has led to treatment delays and missed doses.[1,3,4] Issues that have occurred with the dispensing process include; product acquisition, with payer mandated pharmacies not always carrying the payer mandated preferred product, short turnaround times for patients with only one or two days of therapy prior to long-acting GCSF use, and medication quality assurance concerns with outside pharmacies. These issues have led to delays in therapy that place patients at unnecessary risk for potentially life-threatening infections. Another caveat that impacts pediatric patients is the lack of readily accessible patient specific dosages for GCSF. Some pharmacies are not equipped to prepare patient specific dosages of GCSF for patients, and must send the prescription elsewhere. This contributes to longer wait

times for families and confusion for coordination of care for patients and providers. There is minimal work reported in literature about prescription capture within health care systems for costly medications, and nothing reported in the pediatric specific patient population to the best of our knowledge. The purpose of this study is to evaluate a quality improvement process for the prescribing and dispensing of long-acting GCSF to better serve patients within a single health care system.

Materials and Methods

This is a single center, retrospective chart review evaluating patients both pre and post implementation of a quality improvement initiative. The initiative entailed both pharmacist directed prescription destination and a dedicated specialty team for prior authorization services. The process begins inpatient for newly diagnosed patients in anticipation of discharge. Through the process of writing for a long acting GCSF product, the ordering provider alerts the pharmacist to facilitate the transmission of the order to a specialty pharmacy within the health care system. Once the prescription has been sent to the specialty pharmacy, the pharmacist communicates with the specialty pharmacy prior authorization team, comprised of 4 prior authorization technicians, to alert them of the new prescription. Prior to the quality improvement implementation, the specialty pharmacy prior authorization team did not provide services for pediatric oncology patients. This quality improvement process acted as a trial run for the specialty pharmacy prior authorization team to begin broadening their scope of service to include limited prescriptions for pediatric oncology patients.

Dispensing locations and biosimilar product preference as mandated by payer were also reviewed for the prescriptions. While payer mandates change frequently, this information was collected to potentially help our department prepare the prescription orders to best conform to the patient's individual payer to attempt to expedite the prior authorization process. The patient's insurance at time of prescription being sent was recorded along with the biosimilar product that the patient received, regardless of which biosimilar was originally ordered.

Study timeline includes a retrospective chart review within the electronic medical record to account for all doses of long-acting GCSF prescribed for pediatric oncology patients between June 2020–June 2021 compared with July 2021–March 2022. On June 30, 2021, educational information was provided to the appropriate stakeholders regarding the change in practice. Patients were included if they had a malignant diagnosis and received a new prescription for long-acting GCSF during the review period. Patients were excluded if the long-acting GCSF prescription was written by an outside facility.

Results

A total of 31 patients were included in the review, with 22 patients prior to the intervention accounting for 115 prescriptions, and 9 patients after the intervention accounting for 43 prescriptions (Table). Prior to the quality improvement intervention, 21 (18.3%) of long-acting GCSF prescriptions for new diagnosis patients were retained within the health system. After the quality improvement intervention, 17 (39.5%) of prescriptions were retained within the health system, showing a 21.2% increase in health system prescription retention.

Payer mandated dispensing pharmacies were also tracked (Figures 1 and 2). An increase in prescriptions filled internally were seen for patients with either Anthem BCBS or multiple payers. Biosimilar product preference was also reviewed (Figures 3 and 4). All patients received either Neulasta or Udenyca after the process change, showing a much less diverse cohort compared with the pre-process change group.

Discussion

Long-acting GCSF products are often used to reduce time of neutropenia in pediatric patients with malignant diagnoses, and have been shown to be non-inferior to daily dosing of GCSF products. The relative ease of use and less frequent injections have made long-acting GCSF products preferred by patients and families. There are often many limitations and time consuming requirements before a payer will cover the product. Payers will reject claims for a multitude of reasons, including dispensing location and biosimilar product selection. The prior authorization process to get a long-acting GCSF product approved for a patient can be long and tumultuous, often leading to treatment delays or missed doses. A goal was set to mitigate these issues by implementing a process improvement for the prescribing of long-acting GCSF products within a single institution.

The results of this review showed a large increase in prescriptions for long-acting GCSF retained within a single health system after the implementation of a

Table. Patient and Prescription Counts

	Pre-Intervention	Post-Intervention
Total number of patients	22	9
Total number of prescriptions	115	43
Prescriptions filled externally	94	26
Prescriptions filled internally	21	17

Figure 1. Bar chart comparing various payer entities and the number of prescriptions that were filled internally compared to the number of prescriptions filled externally prior to implementation of a quality improvement initiative.

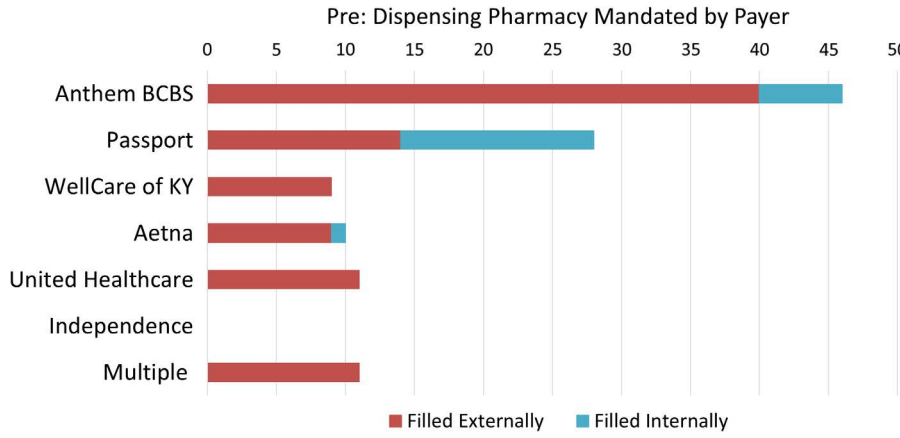


Figure 2. Bar chart comparing various payer entities and the number of prescriptions that were filled internally compared to the number of prescriptions filled externally after implementation of a quality improvement initiative.

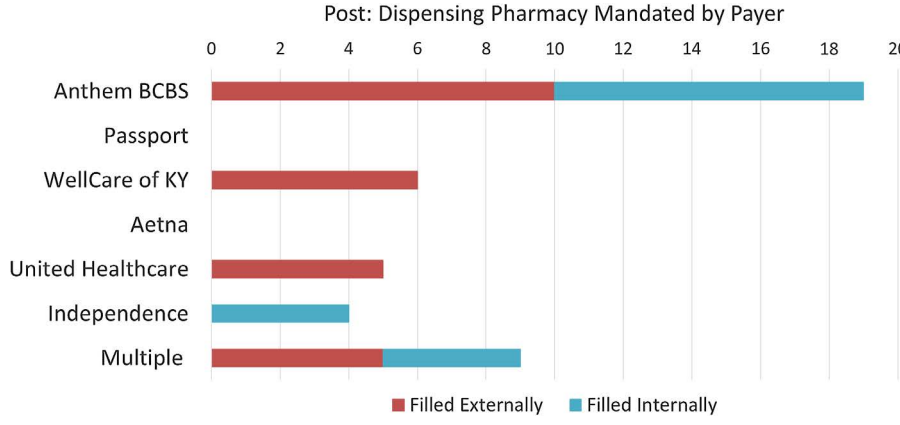
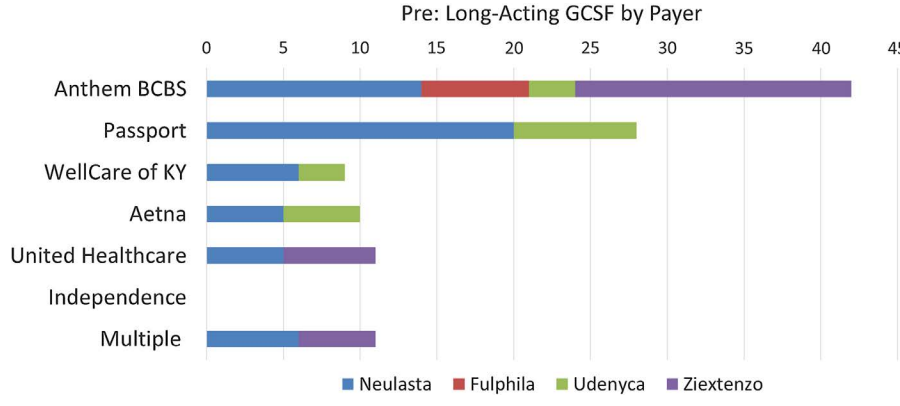
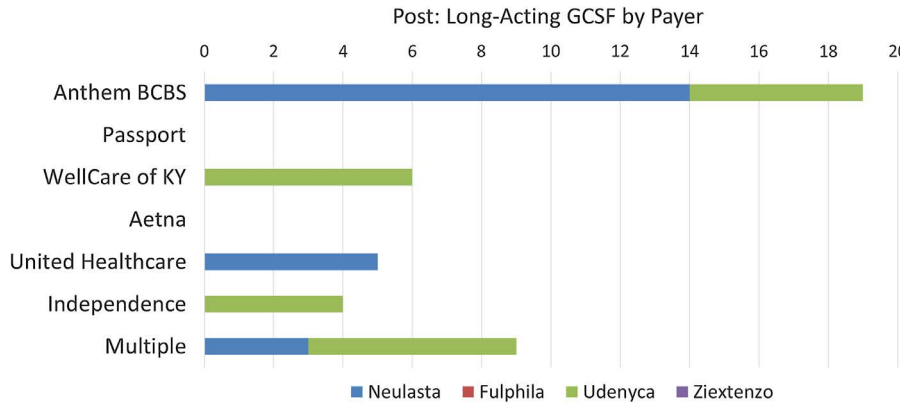


Figure 3. Bar chart comparing various payer entities and the number of long acting granulocyte-colony stimulating factor prescriptions, categorized by insurance mandated brands, prior to implementation of a quality improvement initiative.



GCSF, Granulocyte-colony stimulating factor

Figure 4. Bar chart comparing various payer entities and the number of long acting granulocyte-colony stimulating factor prescriptions, categorized by insurance mandated brands, after implementation of a quality improvement initiative.



GCSF, Granulocyte-colony stimulating factor

quality improvement process. Upon initial dissemination of information to key stakeholders regarding the practice change, pharmacy personnel received positive feedback and buy-in from prescribing providers. With this buy-in and all prescriptions being directly prescribed to the specialty pharmacy within the health care system, the ultimate retention decision was mandated by the payer. Prior to the process change, prescriptions for long-acting GCSF were sent out to the patients preferred community pharmacy that was denoted within the patient's chart in the electronic health care record. Most of these community pharmacies would then reject the claim and send the prescription onto a specialty pharmacy of their choosing or one denoted by the insurance. After the process change, all prescriptions were sent directly to the specialty pharmacy within the health care system. Retention of prescriptions within the health care system allows for improved communication between pharmacy, insurance, and providers. This improved communication ultimately assists with patient adherence, product acquisition, medication quality, and patient ability to receive the prescription without delaying therapy.

With prescriptions being sent directly to the specialty pharmacy, a key contributing factor to the success of the process change was the ownership of prior authorizations. Prior to the process change, prior authorizations were completed mostly by nursing staff within the pediatric oncology clinic. The specialty pharmacy within the health care system has a dedicated prior authorization team that only completed prior authorizations for the adult cancer center patients, excluding pediatric patients. In anticipation of this roadblock of prior authorization ownership, we met with specialty pharmacy and ambulatory care services managers and agreed to set up a trial run of the specialty pharmacy prior authorization team taking ownership for the specific prescriptions included in this review. Once a prescription was sent to the specialty pharmacy, the prior authorization team would work on the claims to get the long-acting growth factors covered to be filled at the specialty pharmacy within the health care system. For those prescriptions that the payer mandated a different dispensing location, the prior authorization team facilitated the prescription transfer. The dispensing locations mandated by the payer (Figures 1 and 2) showed the ability for increased prescription retention for patient covered with Anthem BCBS or multiple payers. There were no patients in the post process change group who were covered by Passport or Aetna, and no patients in the pre process change group who were covered by Independence.

Payers also mandate the biosimilar product that they will cover based on what is on their formulary (Figures 3 and 4). Prior to this review, there was no guidance or recommendation on what biosimilar is preferred and most likely to be approved for patients. Based on our results, we found that all patients were approved for either Neulasta or Udenyca. After this review, communication to prescribing providers included guidance on selecting 1 of those 2 biosimilar products.

Limitations of this review include the retrospective nature of the review, small sample size, and the inability to assess prescription expediency. Multiple insurance companies were not included in either the pre or post intervention groups, which did not afford the opportunity to assess the changes of the intervention with respect to those payers. With prescriptions being sent to payer mandated pharmacies, the providers and pharmacists had no control or ability to collect data on the expediency of the prescription delivery.

Based on the results of this review, the process change will continue to be utilized for all new long-acting GCSF prescriptions moving forward. Meetings with specialty pharmacy and ambulatory care services

managers are currently underway to discuss expansion of prior authorization team services to include additional medications for pediatric oncology patients due to the successful results of this review. An identified need is for the expanded contracting for specialty pharmacy with common insurance company plans to minimize the barrier of inability to fill within the health system.

Conclusion

Pharmacist directed long-acting GCSF prescription destination and a dedicated prior-authorization team led to a 37.8% increase in prescription retention within a single health system. This quality improvement process change led to an increase in prescription retention for patients regardless of payer mandated outpatient pharmacy. Close collaboration of inpatient providers with specialty pharmacy services for high-cost medication is integral to better serve patients and increase prescription capture within a health system.

Article Information

Affiliations. Department of Pharmacy (AH, JE, KH), Norton Children's Hospital, Louisville, KY.

Correspondence. Alexis Hamelink, PharmD; alexis.hamelink@nortonhealthcare.org

Disclosure. The authors declare no conflicts or financial interest in any product or service mentioned in the manuscript, including grants, equipment, medications, employment, gifts, and honoraria. The authors had full access to all the data and take responsibility for the integrity and accuracy of the data analysis.

Ethical Approval and Informed Consent. Given the nature of this study, institutional review board/ethics committee review and informed consent were not required.

Acknowledgments. Pediatric oncology physicians, pharmacists, nurse practitioners and medical teams at Norton Children's Hospital, and Norton Specialty Pharmacy for their assistance. Preliminary results were presented at the Hematology Oncology Pharmacy Association Annual Meeting Trainee Poster Presentations in Boston, MA, on April 1, 2022.

Submitted. September 1, 2022

Accepted. May 2, 2023

References

1. Trautman H, Szabo E, James E, Tang B. Patient-administered biologic and biosimilar filgrastim may offer more affordable options for patients with nonmyeloid malignancies receiving chemotherapy in the United States: a budget impact analysis from the payer perspective. *J Manag Care Spec Pharm*. 2019;25(1):94–101.
2. Cesaro S, Nesi F, Tridello G, et al. A randomized, non-inferiority study comparing efficacy and safety of a single dose of pegfilgrastim versus daily filgrastim in pediatric patients after autologous peripheral blood stem cell transplant. *PLoS ONE*. 2013;8(1):1–8.
3. Dalpoas SE, Socal M, Proctor C, Shermock KM. Barriers to biosimilar utilization in the United States. *Am J Health-Syst Pharm*. 2020;77:2006–2014.
4. Villanueva MN, Davis JE, Sobocinski SM. Navigating uncharted waters: developing a standardized approach for evaluating and implementing biosimilar products at a comprehensive cancer center. *Am J Health-Syst Pharm*. 2021;78:249–260.