Implementation of an enhanced oral chemotherapy care model to prevent medication errors

Kate Smullen[1],PharmD,CSP,MSCS; Sarah Burch[1], PharmD, BCMTMS; Kristin Ditch[1], PharmD, BCCCP; Jennifer Donovan[1], PharmD; Matthew Stuhl[1], PharmD; Brian Smith[1], PharmD; Christopher Paciullo[1], PharmD, Zelaikha Olomi[1], Erik Peterson[1]

1 – Shields Health Solutions

Background

- Oral chemotherapy (OC) is associated with significant medication errors, with previous studies reporting an error rate of up to 10% [1]. These errors can occur at any phase, including storage, dosing, prescribing, preparation, dispensing and administration[2]. Each phase of therapy is prone to failure causing heightened harm to patients.
- Use of OCs has become a staple in the management of cancer patients, with a transfer of responsibility from healthcare professionals to patients.
- Some of the challenges include strict adherence for optimal effects, unique toxicity profiles, frequent lab monitoring, high cost, and proper handling and disposal methods. [3]
- Reviewing laboratory values prior to a patient receiving chemotherapy is commonplace in the infusion or inpatient setting, but this important safety check does not always occur with OC in the outpatient setting.
- Patients on OC self-administer their chemotherapy at home and may request refills that can be inappropriately dispensed due to lack of insight into the patient's current clinical status.

Objectives

Primary objective:

- To reduce medication errors with OC via implementation of a system of increased safeguards around OC refills in a hospital-owned specialty pharmacy.

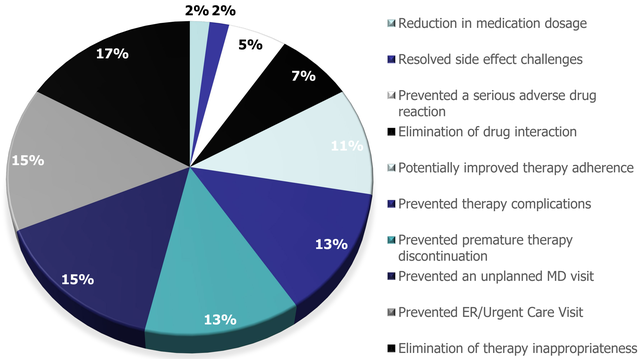
Methods

- In response to a medication error, a workgroup was convened with the specific goal of eliminating the risks of patients possessing their chemotherapy.
- A literature search and review of national organization guidance was conducted to identify components of an OC care model that modeled best practice.
- Patients were identified who filled high-risk cyclic oral chemotherapy at Inova Specialty Pharmacy from 2/17/20 to 6/19/20
- Inclusion criteria consisted of cancer patients aged 18 years or older, diagnosis of cancer and receiving treatment with OC on cyclic dosing schedule
- Drug interactions were identified using Lexicomp, Micromedex, and drug pharmacokinetic information.

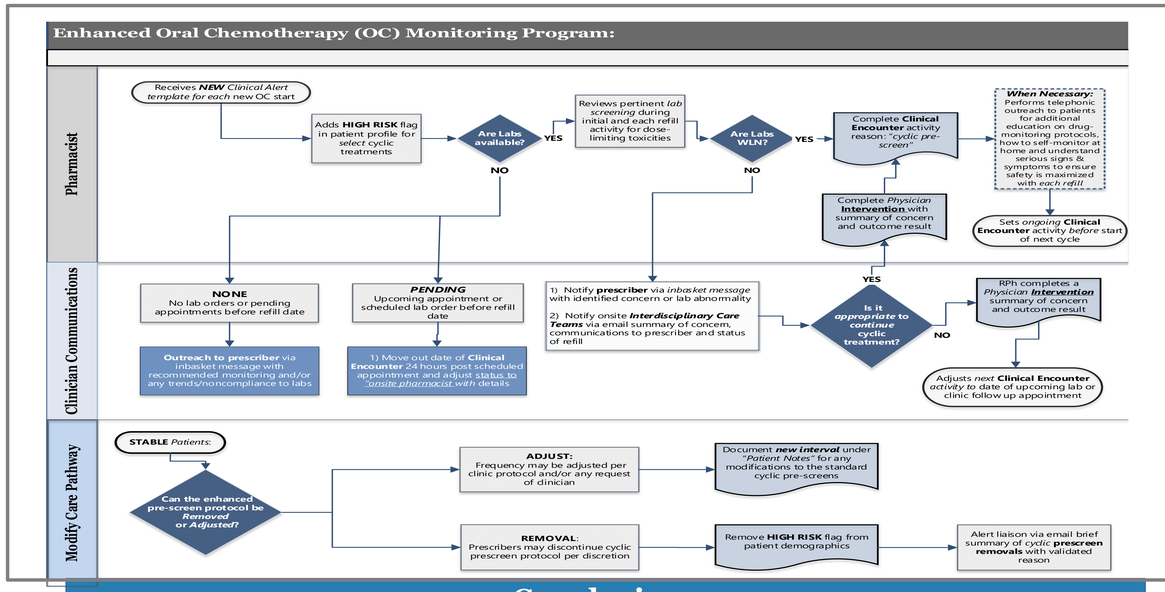
Results

Intervention Categories:	
Drug safety	25
Drug therapy adherence	5
Drug therapy appropriateness	4
Drug therapy effectiveness	5
Laboratory abnormalities	2

CLINICAL OUTCOMES



- A workflow was established that flagged all patients starting on common cyclic therapy as "High-Risk."
- These patients underwent enhanced laboratory screening during their initial fill, where the pharmacist reviews available laboratory values in the electronic medical record against reference values screening for abnormalities or missing records.
- Prior to any refill activity, the pharmacist performed a cyclic pre-screen assessment and repeated before any subsequent dispensations.
- During the first four months of the program, the enhanced care model was utilized on 34 unique patients.
- Of these 34 patients, 7 interventions identified were related to increased laboratory monitoring (20.6%).
- The following sub-types of interventions were identified: drug-drug interactions, laboratory non-compliance, dose modifications, adverse drug reactions, drug holds and dose adjustments with renal impairment to lessen toxicity profile from drug accumulation and omitted supportive care requirements



Conclusions

- Additional checkpoints are necessary to enhance the safety and efficacy of oral chemotherapy treatments self-administered for optimal patient care in the oncology setting.
- Specialty pharmacy access to the electronic medical record is paramount to providing the highest quality care for patients prescribed specialty medications.
- Integrating laboratory review prior to oral chemotherapy dispensations caught errors in one-fifth of cases.
- Further enhancements to the workflow, including automatic categorization of "High-risk" is ongoing to promote continuity of care where pharmacists can make a critical impact in patient safety.
- A larger sample size is required to better evaluate the impact of ongoing prescreen compliance to identify inappropriate refill activities.

References

1. Goldspiel BR, DeChristoforo R, Daniels CE. A continuous-improvement approach for reducing the number of chemotherapy-related medication errors. J Health Syst Pharm. 2000;57 Suppl 4: S4–S9.
2. Bates DW, Boyle DL, Vander Vliet MB, Schneider J, Leape L. Relationship between medication errors and adverse drug events. J Gen Intern Med. 1995:10:199–205
3. Patel, J.M.; Holle, L.M.; Clement, J.M.; Bunz, T.; Niemann, C.; Chamberlin, K.W. Impact of a pharmacist-led oral chemotherapy-monitoring program in patients with metastatic castrate-resistant prostate cancer. J. Oncol. Pharm. Pract. 2016, 22, 777–783.

Disclosures

The authors of this presentation have the following to disclosures concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.
KS: Employee of Shields Health Solutions