The impact of multiple pharmacy use on medication adherence in individuals with colorectal cancer

Timothy Barnett, PharmD; Cliff Rutter, PharmD, PhD; Shehla Zaidi, PharmD; Elisea Avalos-Reyes, PhD; Kelly McAuliff, PharmD, BCOP, CSP; Rashmi Grover, PharmD; Lucia Feczko, RPh; Will Cavers, MSc; Kjel Johnson, PharmD

Background

- Colorectal cancer (CRC) is the third most common cancer diagnosed in both men and women in the US
- The pharmacological care of older and often comorbid members with CRC is becoming a growing healthcare issue
- Cancer members are prone to the unintended consequences of multiple pharmacy use, as they often receive chemotherapy and symptom-relieving agents, in addition to medications they may be taking for other comorbidities.

Objective

- To assess multiple pharmacy use and adherence in a cohort of individuals with CRC

Methods

- Adult pharmacy benefit manager (PBM) members who had at least 2 fills of either regorafenib, encorafenib, or trifluridine-tipiracil at specialty pharmacies between 1/1/2022 and 12/31/2022 were included
- Any fills must have included one of the following diagnosis codes: C18.X, C19.X, C20.X, C21.8, C78.5, C78.6, D37.4, D37.5
- Members were excluded if they did not maintain continuous eligibility for the 180 days prior to initiation in the study
- Specialty pharmacy type included CVS Specialty and Competitor Specialty
- Multiple pharmacy use was defined as utilizing more than one pharmacy for medication fills
- Non-CRC medications included all other medications members were taking other than those mentioned previously
- The primary outcome was adherence determined by the medication possession ratio (MPR), defined as the number of days supplied divided by number of days in the evaluation period; optimal adherence was defined as MPR ≥ 0.8. Optimal adherence is reported as the percent of members that meet operationally defined "optimal adherence"
- Continuous and categorical variables were assessed with standard statistical tests
- Bivariate logistic regression models were constructed for each covariate and significant variables were included in the multivariate model
- Odds ratios (OR) and 95% confidence intervals (CI) for models are presented
- P-values <0.05 were statistically significant.

Results

- In total, 891 members met all inclusion criteria, with 362 (40.6%) meeting the definition of multiple pharmacy use
- Members were on average 59.6 ± 11.2 years old and 54.3% were male
- No differences in member demographics between Specialty pharmacy type were found (all p > 0.05)
- Overall, adherence was high with 79.5% of members having a MPR ≥ 0.8
- Members with multiple pharmacy use had significantly lower adherence rates (76.0% vs. 81.9%; p=0.04) and MPRs (mean ± SD) (1.06 ± 0.45 vs. 1.15 ± 0.53; p=0.011)
- Controlling for specialty pharmacy type, medication used, and gender, multiple pharmacy use was significantly associated with decreased likelihood of optimal adherence compared to not experiencing multiple pharmacy use (OR [95% CI]: 0.705 [0.507-0.98]; p= 0.038)
- Male sex was associated with significantly higher probability of optimal adherence (OR [95% CI]: 1.517 [1.093-2.107]; p=0.013).

Conclusions

In this study of individuals with CRC receiving regorafenib, encorafenib, or trifluridine-tipiracil, **utilizing multiple pharmacies for non-CRC medications was associated a 29.5% decreased probability of optimal adherence compared to those who only utilized one pharmacy**.

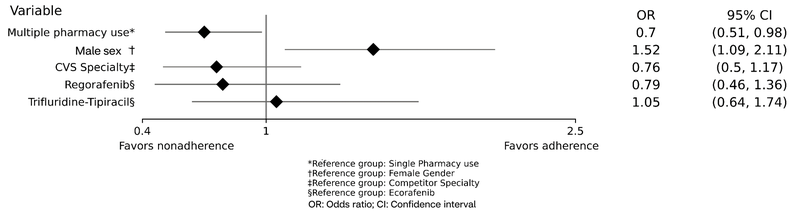
Table 1: Member demographics

Demographic	Overall N=891	Single Pharmacy n (%) = 529 (59.4)	Multiple Pharmacies n (%) = 362 (40.6)	p-value
Age, mean (SD)	59.6 (11.2)	59.8 (10.9)	59.4 (11.7)	0.56
Age, median [Q1,Q3]	60 [52, 66]	61 [52, 66]	58 [52, 66]	0.26
Sex, n (%)				0.8
Female	407 (45.7)	244 (46.1)	163 (45.0)	
Male	484 (54.3)	285 (53.9)	199 (55.0)	
Pharmacy cohort, n (%)				0.007
Competitor Specialty	186 (20.9)	127 (24.0)	59 (16.3)	
CVS Specialty	705 (79.1)	402 (76.0)	303 (83.7)	
Medication cohort, n (%)				0.57
encorafenib	118 (13.2)	65 (12.3)	53 (14.6)	
regorafenib	257 (28.8)	156 (29.5)	101 (27.9)	
trifluridine-tipiracil	516 (57.9)	308 (58.2)	208 (57.5)	

Table 2: Adherence metrics

Metric	Overall N=891	Single Pharmacy n (%) = 529 (59.4)	Multiple Pharmacies n (%) = 362 (40.6)	p-value
Optimal Adherence, n (%)	708 (79.5)	433 (81.8)	275 (76.0)	0.04
Medication Possession Ratio (MPR), mean (SD)	1.112 (0.5)	1.146 (0.5)	1.06 (0.4)	0.011
Medication Possession Ratio (MPR), median [Q1,Q3]	1 [0.86, 1.15]	1.01 [0.87, 1.18]	0.98 [0.82, 1.13]	0.04

Figure 1: Logistic regression results for adherence



*Reference group: Single Pharmacy use
†Reference group: Female Gender
‡Reference group: Competitor Specialty
§Reference group: Ecorafenib
OR: Odds ratio; CI: Confidence interval

Subgroup analysis

- Potential for missing data among members with no non-CRC medications fill
- Included only members with ≥1 non-CRC medication fills
- Methods were otherwise unchanged

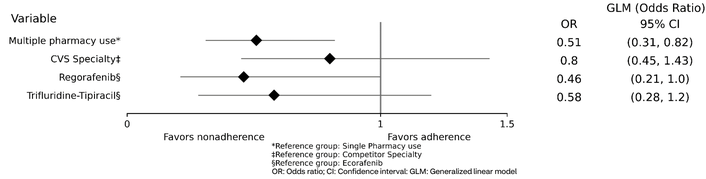
Table 3: Subgroup analysis member demographics

Demographic	Overall N=546	Single Pharmacy n(%) =184 (33.7)	Multiple Pharmacies n(%) = 362 (66.3)	p-value
Age, mean (SD)	59.7 (11.3)	60.2 (10.6)	59.4 (11.7)	0.39
Age, median [Q1,Q3]	59 [52, 66]	60 [53, 66]	58 [52, 66]	0.38
Sex, n (%)				0.77
Female	249 (45.6)	86 (46.7)	163 (45.0)	
Male	297 (54.4)	98 (53.3)	199 (55.0)	
Pharmacy cohort, n (%)				0.5
Competitor Specialty	94 (17.2)	35 (19.0)	59 (16.3)	
CVS Specialty	452 (82.8)	149 (81.0)	303 (83.7)	
Medication cohort, n (%)				0.4
encorafenib	73 (13.4)	20 (10.9)	53 (14.6)	
regorafenib	159 (29.1)	58 (31.5)	101 (27.9)	
trifluridine-tipiracil	314 (57.5)	106 (57.6)	208 (57.5)	

Table 4: Subgroup analysis adherence metrics

Metric	Overall N=546	Single Pharmacy n (%) =184 (33.7)	Multiple Pharmacies n (%) = 362 (66.3)	p-value
Optimal Adherence, n (%)	433 (79.3)	158 (85.9)	275 (76.0)	0.010
Medication Possession Ratio (MPR), mean (SD)	1.12 (0.5)	1.22 (0.6)	1.06 (0.4)	0.002
Medication Possession Ratio (MPR), median [Q1,Q3]	1 [0.86, 1.16]	1.02 [0.89, 1.6]	0.98 [0.82,1.13]	0.012

Figure 2: Subgroup analysis logistic regression results for adherence



*Reference group: Single Pharmacy use
‡Reference group: Competitor Specialty
§Reference group: Ecorafenib
OR: Odds ratio; CI: Confidence interval: GLM: Generalized linear model

Subgroup analysis conclusions

Multiple pharmacy use was associated with decreased optimal adherence compared to members using only one pharmacy for non-CRC medications, confirming results of primary analysis.

Point of Contact: Timothy Barnett
Email: timothy.barnett2@cvshealth.com

Presented at 2024 National Association of Specialty Pharmacy Annual Meeting. Oct. 6-9, 2024. Nashville, TN.