VANDERBILT HEALTH | Specialty Pharmacy

Implementation of oral anticancer early monitoring using electronic questionnaires

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PURPOSE

Evaluate the effectiveness of implementing early oral anticancer medication monitoring questionnaires sent through an electronic patient portal at identifying adverse effects that require pharmacist intervention.

METHODS

Study Design
Single-center, randomized, pragmatic, cohort study.
1:1 stratified randomization based on age and sex

Study Setting
Vanderbilt Ingram Cancer Center,
Integrated Health System Specialty Pharmacy

Study Sample
Adults with an active patient portal filling new oral anticancer medications at Vanderbilt Specialty Pharmacy at least once between August 15, 2023 and February 29, 2024

To evaluate differences in **timing and frequency of adverse effect identification** resulting in a pharmacist intervention during the **first 45 days** of treatment between intervention and usual care (control).

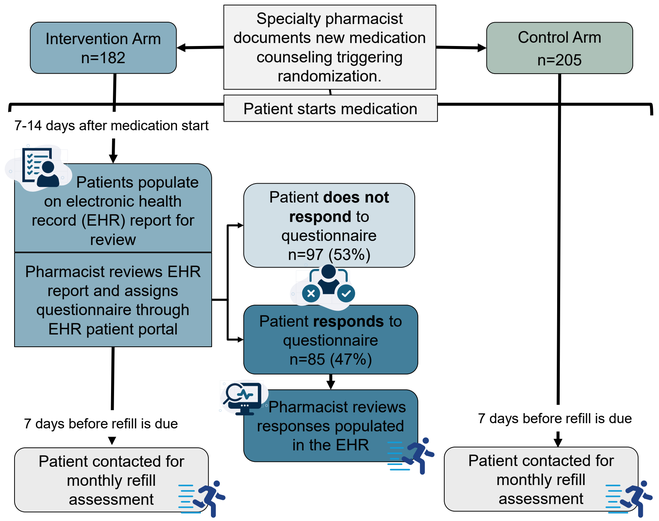
Aim 1

To evaluate the difference in **medication changes and clinical outcomes** at **90 days** after initial medication dispense between intervention and usual care (control).

Aim 2

*Electronic questionnaire implementation evaluation and results were previously presented at SERC 2024 and published in AJHP (see QR code)

Figure 1. Study Procedures and Attrition



*Pharmacist interventions are provided based on patient need and could occur during an assessment or by contacting the pharmacy directly

Table 1. Demographics

Characteristic	Intervention n=182	Usual care n=205
Sex: Male, n (%)	111 (61)	116 (57)
Age group: >= 60, n (%)	123 (68)	144 (70)
CCI*, Median (IQR)	7 (5 - 9)	8 (5 - 9)
Drug class category, n (%)		
Anti-androgens/HRAs*	70 (38)	59 (29)
Anti-neoplastic agents	112 (62)	146 (71)
Diagnosis category, n (%)		
Breast	32 (18)	30 (15)
Central nervous system	24 (13)	20 (10)
GI	18 (10)	40 (20)
GU	83 (46)	81 (40)
Other**	25 (14)	34 (17)
Cancer stage, n (%)		
Stage I or II	36 (20)	30 (15)
Stage III	36 (20)	30 (15)
Stage IV	107 (59)	142 (69)
Staging not available	3 (2)	3 (1)

*Abbreviations: CCI (Charlson Comorbidity Index), IQR: interquartile rangeHRAs (hormone receptor antagonists), GI: gastrointestinal, GU: genitourinary
** Other: Gynecologic, Head/neck, Lung, Melanoma/sarcoma

CONCLUSIONS

- Patients who responded to the early monitoring questionnaire had a higher rate and faster time to pharmacists identifying and addressing adverse events from newly initiated oral anticancer therapy.
- Patients in the usual care arm were 2x more likely to have healthcare utilization than intervention patients.
- Increasing response rate to the electronic early monitoring questionnaire is needed to optimize its impact on outcomes.

RESULTS

Figure 2. AE-Related Intervention Within 45 Days

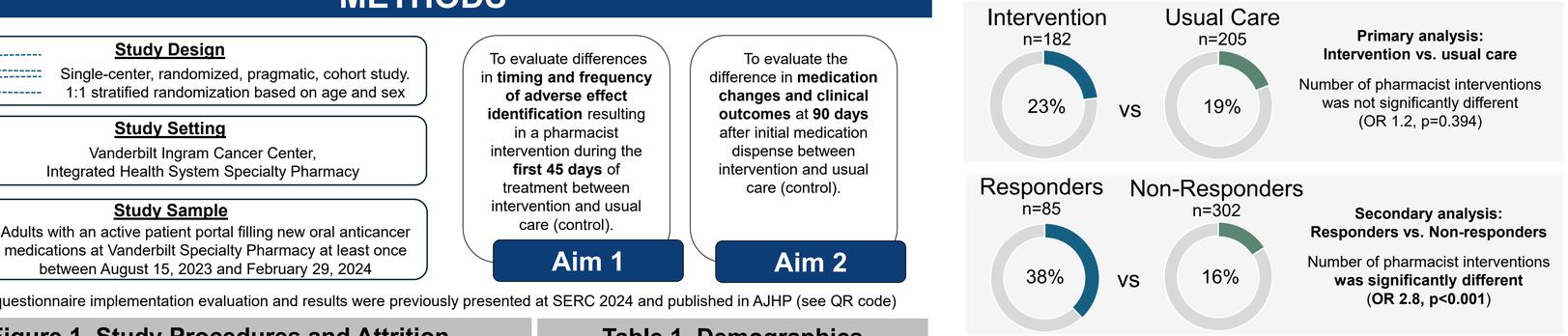
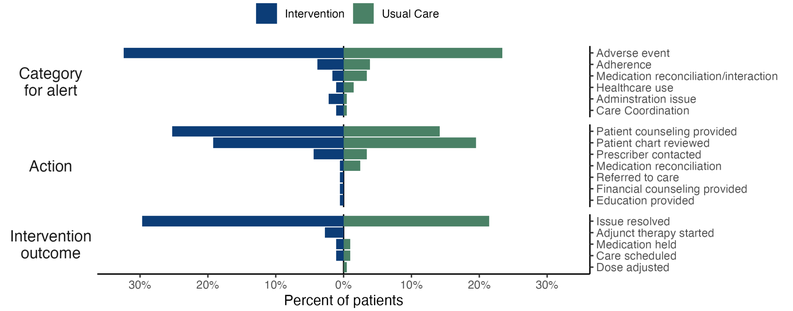
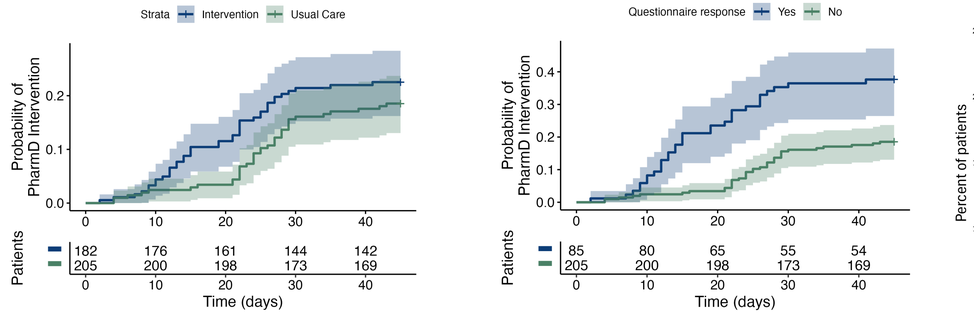


Figure 3. Types and Outcomes of Interventions within 45 Days



Patients could have multiple interventions. Within a single intervention, patients could have multiple categories of alert, actions, and intervention outcomes.

Figure 4. Time to Pharmacist Interventions

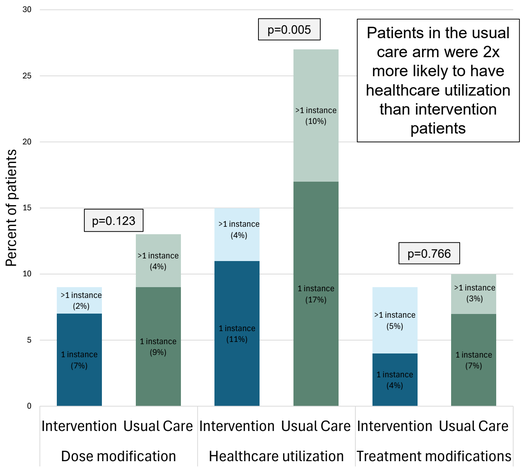


No significant difference between groups
Time to first AE-related intervention
(HR 1.2, p=0.347)

Significant difference between groups
Faster time to first AE-related intervention for responders
(HR 2.5, p<0.001)

Responders: intervention patients who completed the questionnaire,
Non-Responders: intervention patients who did not complete the questionnaire + control patients

Figure 5. 90-day Outcomes



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