The Impact of Telephonic and Printed Patient Counseling Measures on Adverse Events and Medication Discontinuation

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Background

Pharmacists play a crucial role in patient care, particularly in managing chronic diseases and providing medication counseling.[1] Comprehensive counseling methods delivered in various forms enhances patient adherence, improves understanding of side effects, and contributes to better outcomes.[2] Patient counseling is essential in the specialty pharmacy setting, where the complexity of medication regimens are managed through a high-touch model that promotes patient adherence and addresses potential adverse events.[3] This model includes supplemental clinical services, personalized follow-ups, and focused printed educational materials. Medication nonadherence is linked to misunderstanding of proper medication usage, patient forgetfulness, high pill burden, and severity of drug interactions and adverse events.[4] Comprehensive clinical pharmacist counseling has reduced the occurrence and severity of adverse events while improving patient adherence.[5]

Adverse events (AE) can disrupt medication use and potentially lead to treatment discontinuation. While research has explored patient counseling in specialty pharmacy settings, there is a gap in understanding the role of printed patient education materials and telephonic counseling in rare specialty pharmacies, concerning their impact on adverse events and medication discontinuation.

Objective

To examine how the use of telephonic and printed education materials impacts medication adverse event reporting and discontinuation within a national rare disease specialty pharmacy.

Methods

This retrospective analysis utilized a national rare pharmacy database to identify patients from January 1, 2019, to December 31, 2024. The study population includes patients prescribed a selection of rare specialty medications. The intervention cohort includes patients who received printed patient education materials before initiating therapy, allowing for outcomes before and after the launch of these services. Additionally, patients who received supplemental care both before and during therapy are included in the intervention cohort for comparison. For the gap day analysis, the intervention cohort includes patients who received printed or telephonic patient counseling analyzed independently of each other. The control cohort includes patients prior to the implementation of printed patient education materials and programs without supplemental clinical services . The primary focus is to evaluate the impact of printed and telephonic patient counseling on 1) the reporting of adverse events and 2) medication discontinuation secondary to adverse events. Secondary endpoints compare the impact of printed and telephonic patient counseling on the gap days between patients fills in each cohort.

Definitions for the tables and figures in the results section are as follows:

Tables 1,2 and Figures 2,3	*Control: No PANTHERx printed patient counseling implemented
	**Intervention: PANTHERx printed patient counseling implemented
Table 3 and Figure 1	*Control: Limited clinician services
	**Interventions Combined: All clinician services (3 categories)
Figures 4,5	*Control: Limited clinician services
	**Intervention: Supplemental clinician services

Results

Printed Patient Counseling

Table 1. Discontinuations Due to Adverse Events

	Discontinuations (D/C) Due to Adverse Events (AE)	P-value
Control*	1,447 (64%)	<0.001
Intervention**	804 (36%)	

The percentage represents the percent of the discontinued population who discontinued due to an adverse event

Table 2. Number of AEs Per Patient

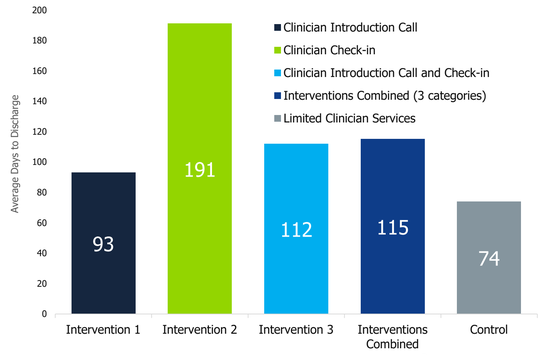
	Number of AEs Reported Per Patient Who D/C Due to AE	P-value
Control*	1.75	0.204
Intervention**	1.71	

Telephonic Patient Counseling

Table 3. Patient Population

	Patient Population	P-value
Clinician Introduction Call	74	0.022
Clinician Check-In	28	<0.001
Clinician Introduction Call and Check-In	196	<0.001
Interventions Combined**	298	<0.001
Control*	414	--

Figure 1. Average Time to D/C Due to AE



Gap Day Analysis

Figure 2. Patient Population (Printed Patient Counseling)

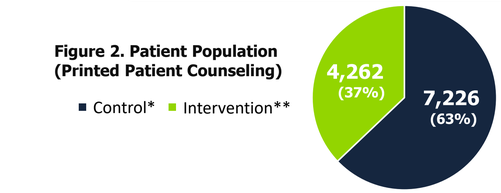


Figure 3. Average Gap Days

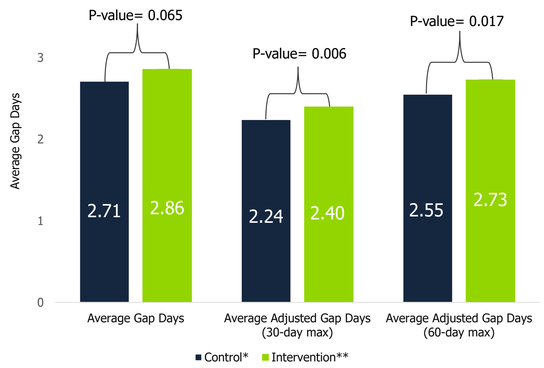


Figure 4. Patient Population (Telephonic Patient Counseling)

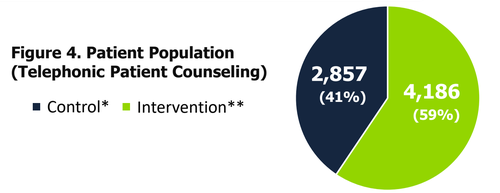
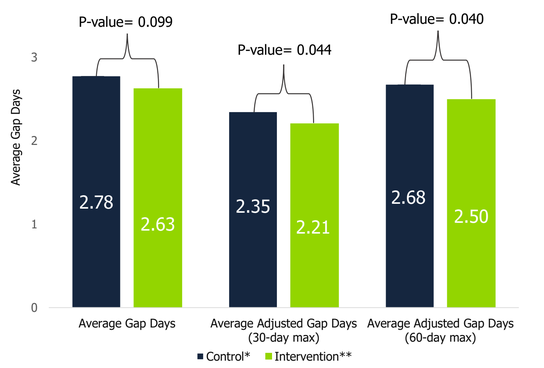


Figure 5. Average Gap Days



Discussion

The eligible population was 2,251, which only included patients who discontinued due to an adverse event. Of the patients who discontinued, 64% of them discontinued prior to the implementation of printed patient counseling material and 36% after the implementation (Table 1). This difference was statistically significant, suggesting that the introduction of printed patient counseling material had a positive effect on reducing discontinuations related to adverse events. Although the average number of reported adverse events per patient who discontinued medication was lower in the intervention group (Table 2), this difference was not statistically significant.

The patient population for this retrospective study was expanded to include all patients who received at least two shipments during the study window when analyzing gap days before (63%) and after (37%) the implementation of patient-printed counseling materials (Figure 2). Average gap days and average adjusted gap days with a maximum of 30 and 60 days were higher for all categories in the intervention group (Figure 3). Although this difference was not statistically significant (Table 3), it is worth noting that the increase in gap days could be attributed to the nature of the PANTHERx printed counseling material, which is not specifically focused on adherence.

Patients who received telephonic patient counseling stayed on therapy an average of 19 days longer compared to those who did not receive supplemental clinician services (Figure 1). This difference was statistically significant across all categories of patient counseling received (Table 3).

A further analysis of average gap days was conducted for those who received supplemental clinician services. A statistically significant reduction in gap days compared to the control group was shown, particularly when analyzing average adjusted gap day with a 30-day (p=0.044) and 60- day (p=0.04) maximum (Figure 5). The average unadjusted gap day analysis revealed outliers that may have skewed the data. When comparing gap days all groups showed a decrease in gap days when comparing the intervention group to the control group.

This study has several limitations that should be considered when analyzing the results. One limitation is the small patient sample size for the implementation of printed patient counseling material. Additionally, some of the oral medications involved in this study have more complex dosing regimens and complicated adverse events which could account for differences observed in gap days between the two groups.

Conclusion

The results of this study emphasize the importance of patient counseling and education in improving treatment outcomes. When comparing telephonic and printed counseling materials to limited counseling materials, significant differences were observed in discontinuations due to adverse events, average days to discontinuation, and gap days. These results help highlight the valuable role supplemental clinical services have in supporting patient care within a rare specialty pharmacy.

References

1. El-Khouri AC, Giavatto C, Hickman A, et al. Health-system specialty pharmacist intervention types, acceptance, and associated actions for patients with multiple sclerosis. *Am J Health Syst Pharm*. 2024;81(S2):S29-39.
2. Amado AY, Frye C, Holland W, et al. Development of a process to improve medication adherence in patients with rheumatoid arthritis in the specialty pharmacy setting. *J Am Pharm Assoc (2003)*. 2020;60(S3S:S61-S64.e1.
3. Shah NB, Mitchell RE, Proctor ST, et al. High rates of medication adherence in patients with pulmonary arterial hypertension: An integrated specialty pharmacy approach. *PLoS One*. 2019;14(6):e0217798. Published 2019 Jun 6.
4. Tschida S, Aslam S, Khan TT, et al. Managing specialty medication services through a specialty pharmacy program: the case of oral renal transplant immunosuppressant medications. *J Manag Care Pharm*. 2013;19(1):26-41.
5. Plechschmidt J, Fietkau K, Hepp T, et al. Clinical Pharmacist Counselling Improves Long-term Medication Safety and Patient-reported Outcomes in Anti-TNF-treated Patients With Inflammatory Bowel Diseases: The Prospective, Randomized AdPhaNCED Trial. *Inflamm Bowel Dis*. Published online March 20, 2024.

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