

Improving Oral Medication Adherence in Oncology

Outpatients at a Rural Cancer Center

Christina Freeze, BSN, RN

Faculty Advisor: Miki Goodwin PhD, RN, FAAN

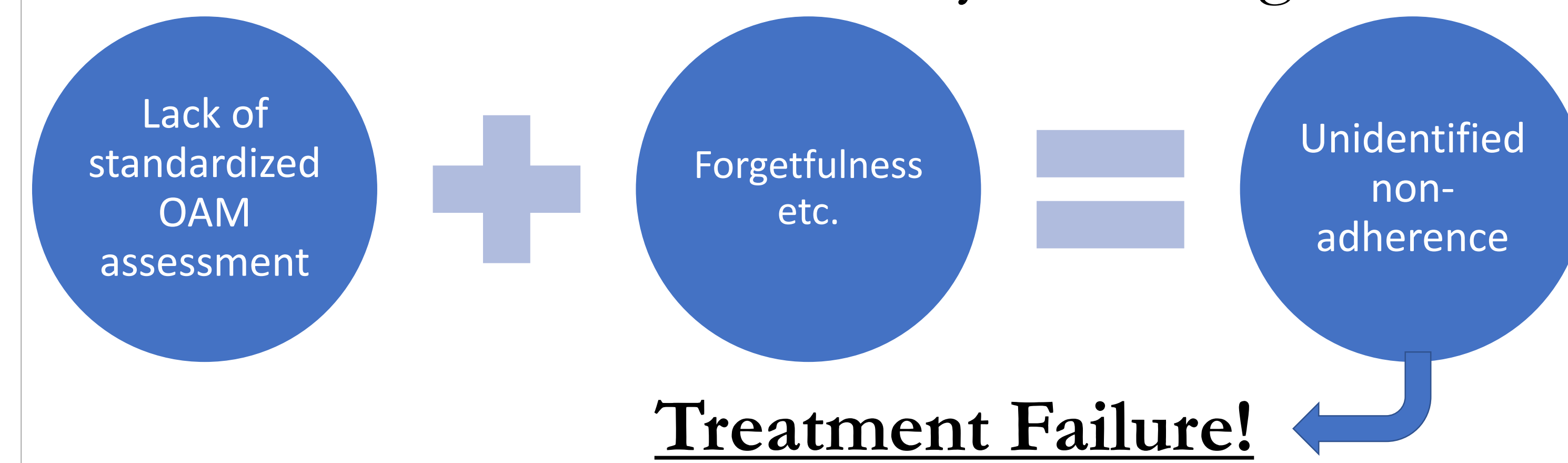
Project Mentor: Dr. Laura D. Kerbin, MD



JOHNS HOPKINS
SCHOOL of NURSING

Introduction

- 1.5 million Americans are diagnosed with cancer each year ⁽¹⁾
- Patients are choosing oral anticancer medications (OAMs) as they are convenient
- Adherence to oral medications ranges from 46% to 100% ⁽²⁾
- It is estimated that 25% of patients at a local cancer center are nonadherent to OAMs, mostly due to forgetfulness
- Nonadherence can lead to **treatment failure, increased morbidity and increased mortality** ^(2,3,4)
- Adherence assessments are not standardized at this site as recommended by national guidelines⁽⁵⁾



Purpose and Aims

- Purpose:** Develop a survey to measure OAM adherence before and after implementation of an educational program that includes a pillbox
- Aim 1:** Standardize the way OAM nonadherence is identified at each provider visit
- Aim 2:** Improve OAM adherence rates by adding a pillbox to an existing education program

Methods

Design and Setting: Intervention and comparison group at a small rural outpatient cancer center

Sample: Two independent sample groups

Group 1: 45 existing patients on OAMs

Group 2: 5 new patients taking OAMs

Intervention:

- Adapted an adherence survey from the site's EHR
- Survey administered at all provider appointments during the intervention phase
- Pillbox added to the existing educational program
 - Patients educated on how to fill pillbox and utilized throughout intervention phase

Analysis: Percentage comparisons between groups

Sample Characteristics

Variable	Group 1		Group 2	
	No (N=45)	%	No. (N=5)	%
Age >64 y	27	60.0	4	80.0
Female	28	62.2	5	100.0
Race				
White	26	57.8	1	20.0
Black	19	42.2	4	80.0
Cancer Origin				
Blood/Bone Marrow	15	33.3	2	40.0
Other	30	66.7	3	60.0
No. of Medications in Regimen				
One	40	88.9	4	80.0
>One	5	11.1	1	20.0
Maximum No. of Pills in a Dose				
One	26	57.8	2	40.0
Two	8	17.8		
Three	4	8.9		
>Three	7	15.5	3	60.0
Maximum No. of Doses Per Day				
Once Daily	26	57.8	3	60.0
Twice Daily	19	42.2	2	40.0
Daily Dosing or Cycle Breaks				
Daily/No Breaks	25	55.6	2	40.0
Breaks in Cycle	20	44.4	3	60.0

1. National Cancer Institute. (2018). Cancer statistics. US Department of Health and Human Services, National Institutes of Health. <https://www.cancer.gov/about-cancer/understanding/statistics>

2. Greer, J. A., Amoyal, N., Nisotel, L., Fishbein, J. N., MacDonald, J., Stagl, J., Lennes, I., Temel, J. S., Safren, S. A., & Pirl, W. F. (2016). A systematic review of adherence to oral antineoplastic therapies. *The Oncologist*, 21(3), 354-376. <https://doi.org/10.1634/theoncologist.2015-0405>

3. Bartlett Ellis, R. J., Hertz, D., Callahan, P., & Ruppert, T. M. (2020). Self-reported nonadherence associated with pharmacy and home medication management inconvenience factors in a U.S. adult population. *Patient Preference and Adherence*, 14, 529-539. <https://doi.org/10.2147/PPA.S223408>

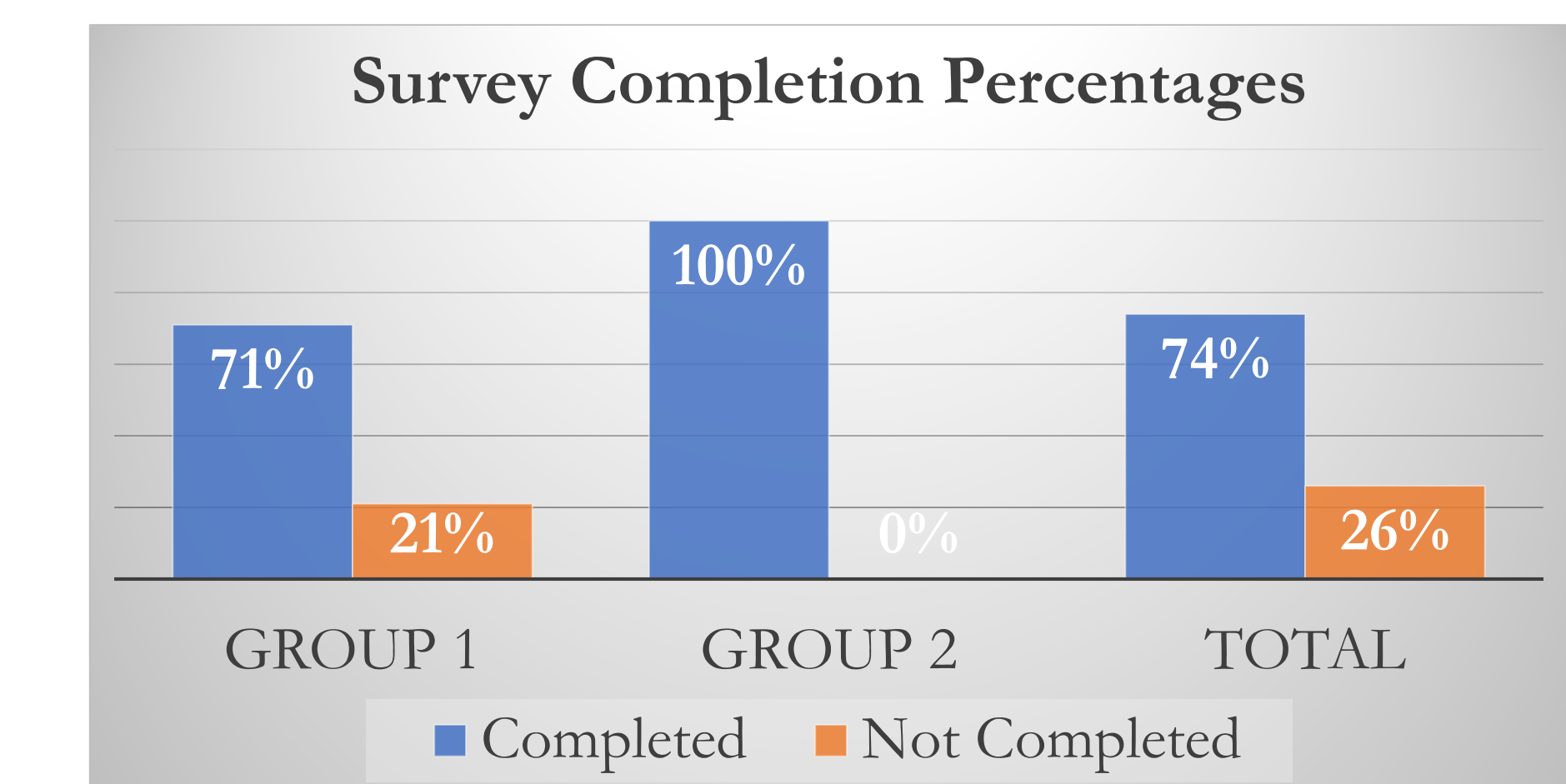
4. Matti, N., Delon, C., Rybarczyk-Vigouret, M. C., Khan, G. M., Beck, M., & Michel, B. (2020). Adherence to oral anticancer chemotherapies and estimation of the economic burden associated with unused medicines. *International Journal of Clinical Pharmacology*, 42(5):1311-1318. <https://doi.org/10.1007/s11096-020-01083-4>

5. Neuss, M. N., Gilmore, T. R., Belderson, K. M., Billett, A. L., Conti-Kalchik, T., Harvey, B. E., Hendricks, C., Lefebvre, K. B., Mangu, P. B., McNiff, K., Olsen, M., Schulmeister, L., Von Gehr, A., & Polovich, M. (2016). 2016 updated American Society of Clinical Oncology/Oncology Nursing Society chemotherapy administration safety standards, including standards for pediatric oncology. *Oncology Nursing Forum*, 44(1), 1-13. <https://doi.org/10.1200/JOP.2016.017905>

Results

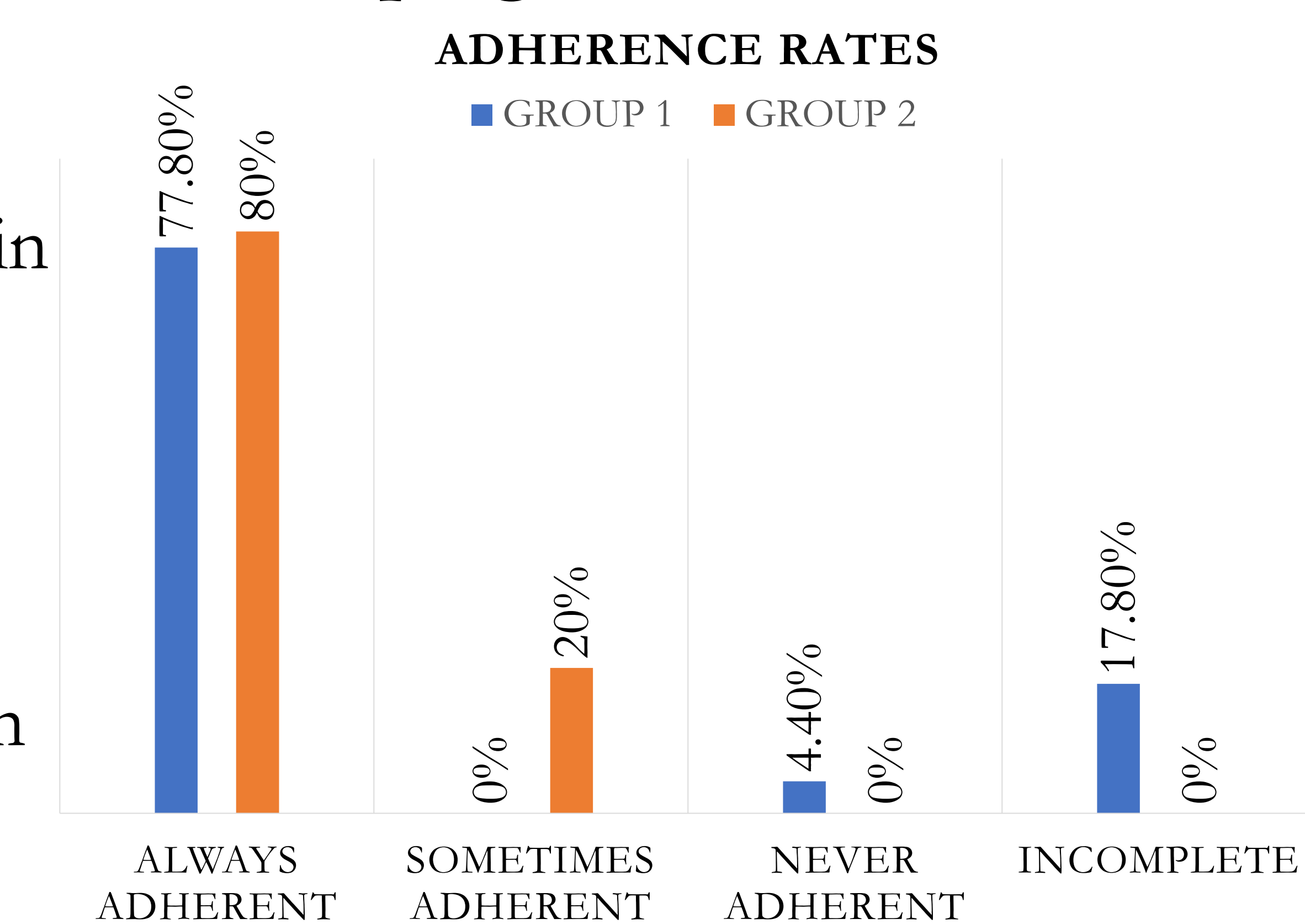
Aim 1: Standardize OAM Adherence Assessment

- Pre-intervention completion rates were 0%
- Post-intervention combined completion rate was 74%



Aim 2: Improve OAM adherence with addition of a pillbox to the educational program

- Participants who were always adherent increased from 77.8% in Group 1 to 80% in Group 2
- Participants who were never adherent decreased from 4.4% in Group 1 to 0% in Group 2



Conclusion

- Standardizing medication adherence assessment follows national guideline recommendations and allows for easier quality and safety monitoring. In addition, a multimodal educational approach that includes reminder packaging may improve OAM adherence, therefore improving treatment success.