

Pharmaceutical Care reduces Hospital readmission rate in Asthma acute exacerbation patients

Weasarath Chittivan, Pharm. D.¹, Kitiyot Yotsombut, BSc. Pharm, Ph.D.²

1. Department of Pharmacy, Clinical Pharmacy Unit, King Chulalongkorn Memorial Hospital, The Thai Red Cross Society, 2. Faculty of Pharmaceutical sciences, Chulalongkorn University



Background:

Asthma is a common disease with a 7% incidence in Thailand¹. It's been a rank 28th in the cause of death in Thailand. Exacerbations may occur in patients with a preexisting diagnosis of asthma or, occasionally, as the first presentation of asthma. It's usually occurred in response to exposure to an external agent and/or poor adherence to controller medication. Not currently using inhaled corticosteroids (ICS) or poor adherence with ICS-containing medications is a factor that increases the risk of asthma-related death. The pharmacist is an important key to improving the adherence and compliance of the patient.

Objectives:

To explore the effects of pharmaceutical care by the respiratory pharmacist (RPH) in asthma acute exacerbation patients at King Chulalongkorn Memorial Hospital (KCMH) regarding a percent of readmission in 30 days and extending time to severe exacerbation..

Methods:

This is a prospective study in KCMH from 1 August 2021 to 31 January 2022. All asthma exacerbation patients in the intervention group were evaluated and educated in inhaler devices technique, adherence, compliance, and appropriate medication based on GINA Guideline by RPH. And control group received standard treatment but did not include intervention from RPH. The demographic data, readmission rate in 30 days, and time to exacerbation were collected at the 1st visit and monitored after discharge from the hospital for 60 days.

Results:

There were 45 asthma patients with a mean age of 52.22 years. 21 patients were female. 77.78 percent of patients never get an education from RPH. This group was higher in exacerbation rate per patient-year for 3 times than patients with a history of RPH education group. The demographic data is shown (table1).

Table 1: demographic data.

Characteristics	General Treatment (N = 27)	Pharmaceutical Care (N = 7)	Total (N = 34)
Age (years)	50.05	64.00	52.22
Gender			
- Male (%)	22 (57.89)	2 (28.57)	24 (53.33)
- Female (%)	16 (42.11)	5 (71.43)	21 (46.67)
Number of devices per patient	1.71	1.94	1.820
RPH Education History (%)			
- Yes	8 (21.05)	2 (28.57)	10 (22.22)
- No	30 (78.95)	5 (71.43)	35 (77.78)
Severity			
- Mild	3 (7.89)	0	3 (6.67)
- Moderate	33 (86.84)	5 (71.43)	38 (84.44)
- Severe	2 (5.26)	2 (28.57)	4 (8.89)

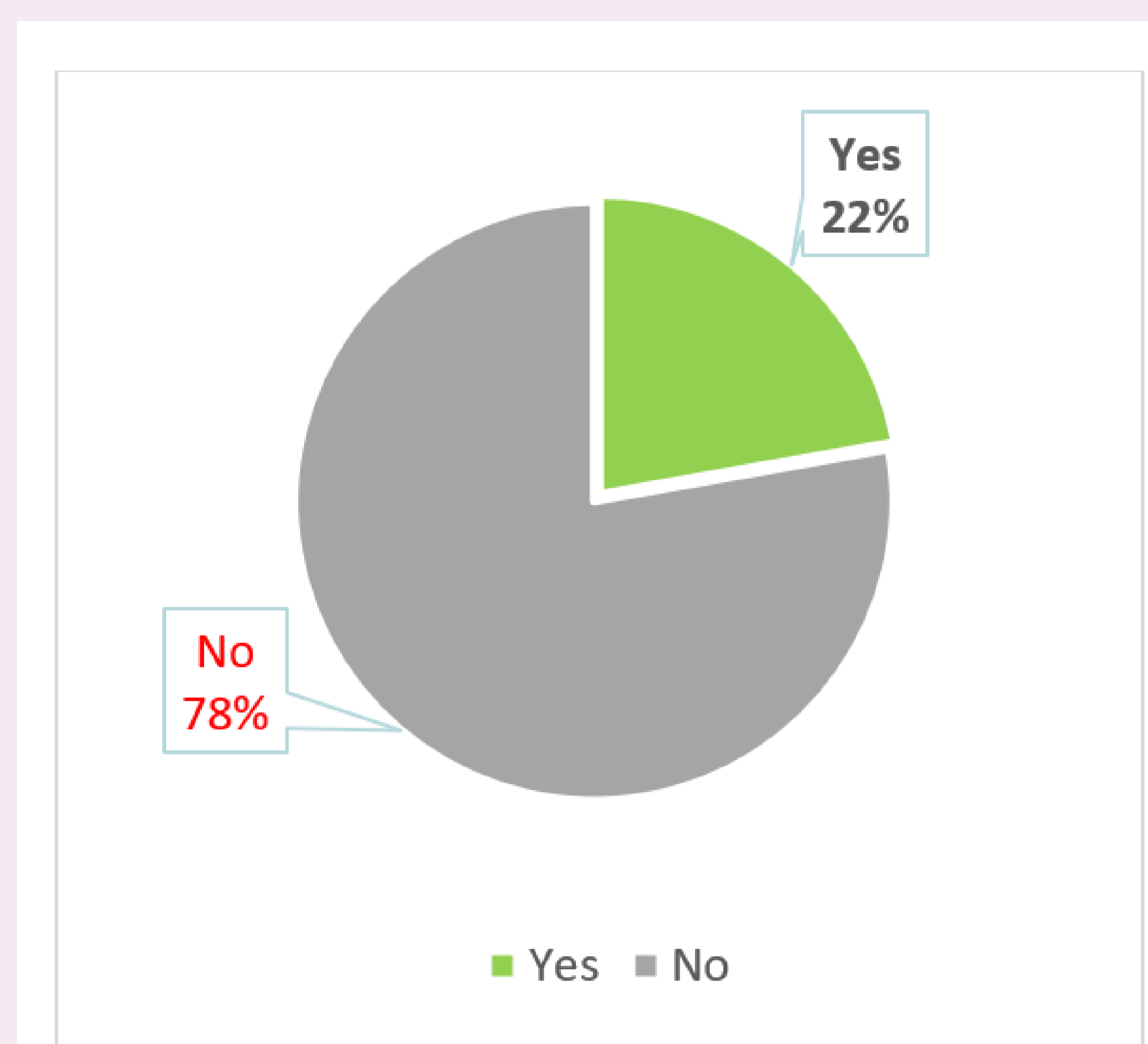


Figure 1 History of RPH education

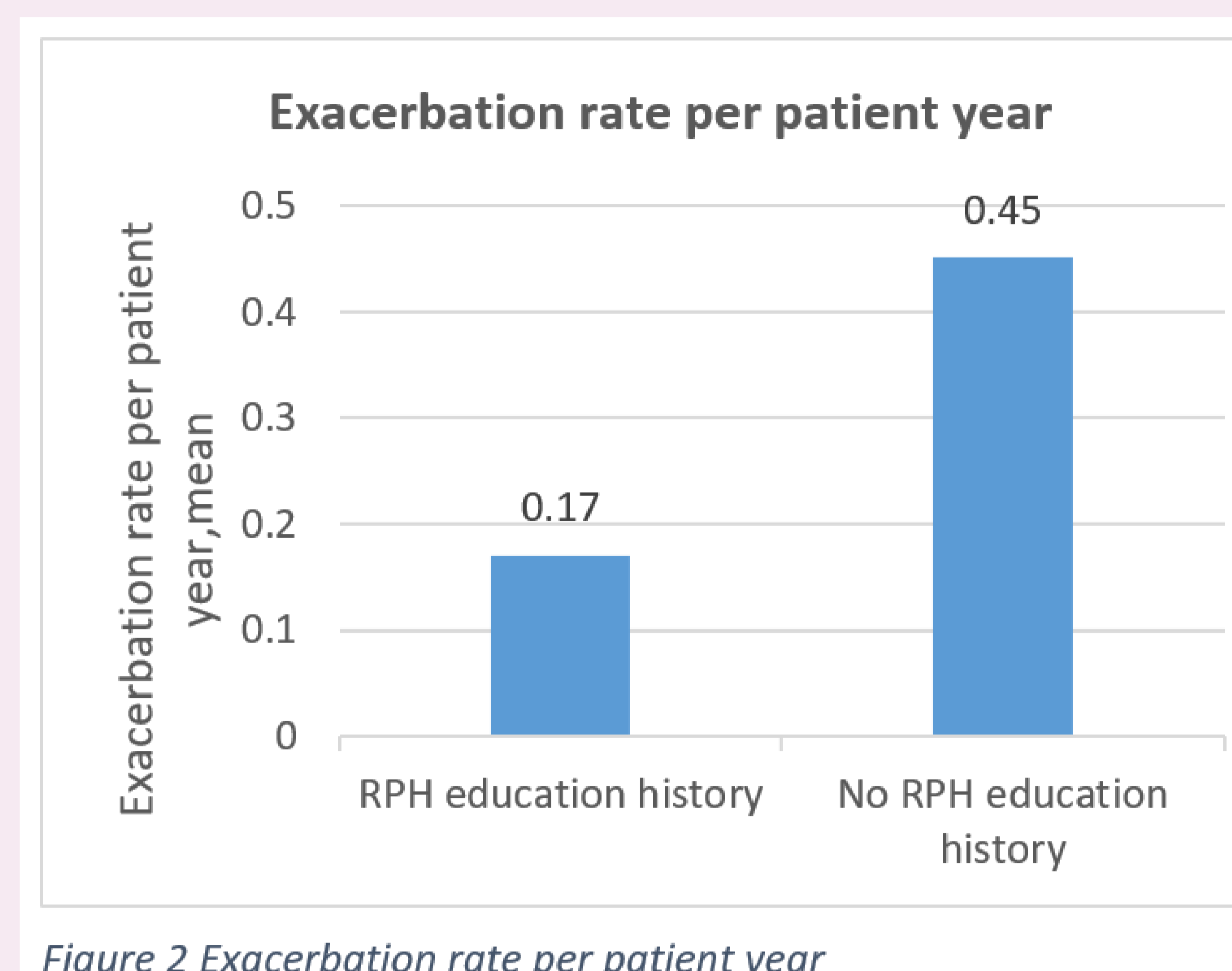


Figure 2 Exacerbation rate per patient year

The primary outcome is the percent of patients with Hospital re-admission in 30 days. The result shows patients in the general treatment group had a higher readmission rate than the pharmaceutical care group at 44.74 (17 patients) and 14.29 (1 patient) percent (p-value = 0.11). And secondary outcome as an average time to severe exacerbation in 60 days is 49.5 and 14.75 days compared between the pharmaceutical care group and general treatment group.

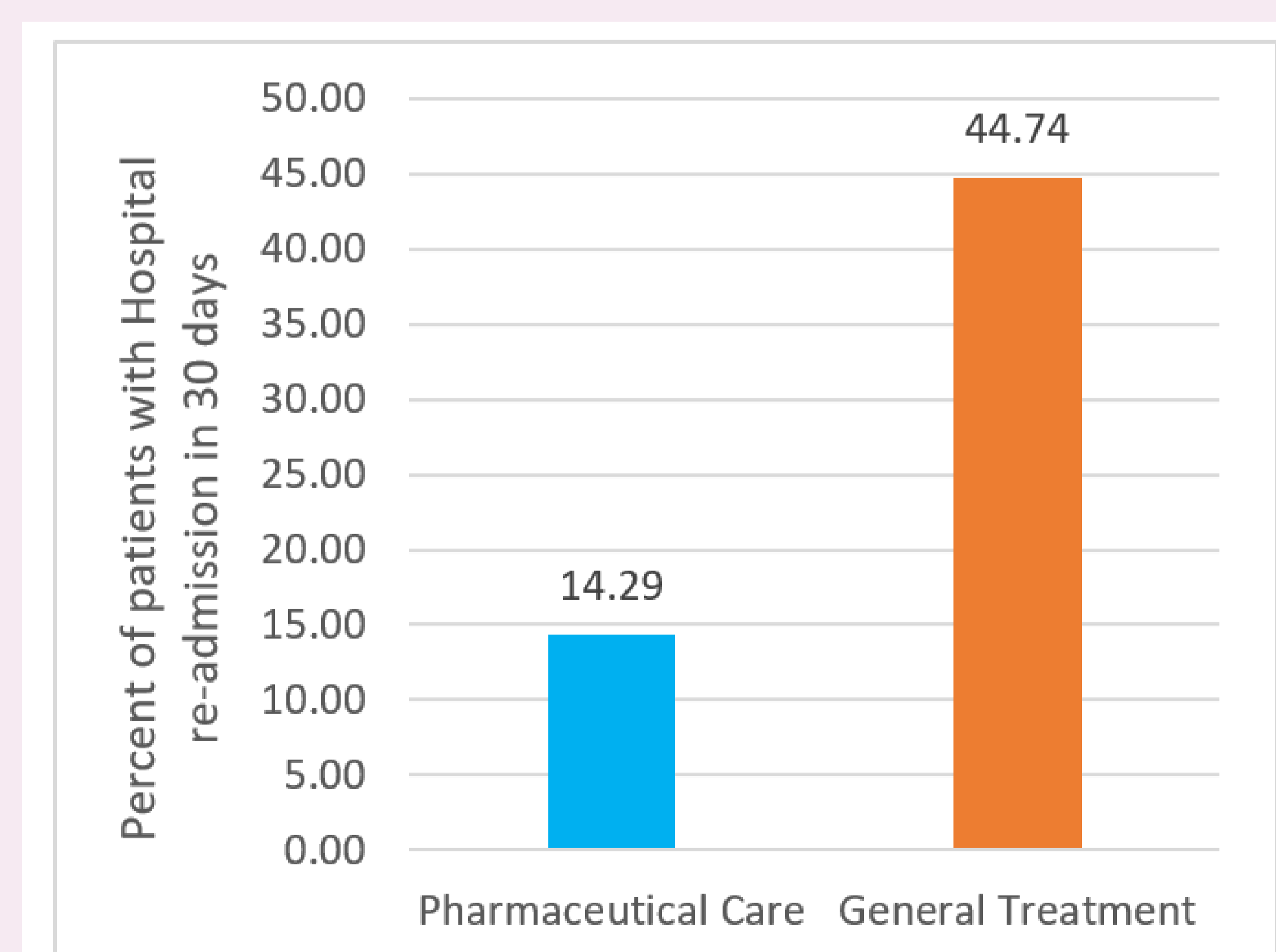


Figure 3 Percent of patients with Hospital re-admission in 30 days

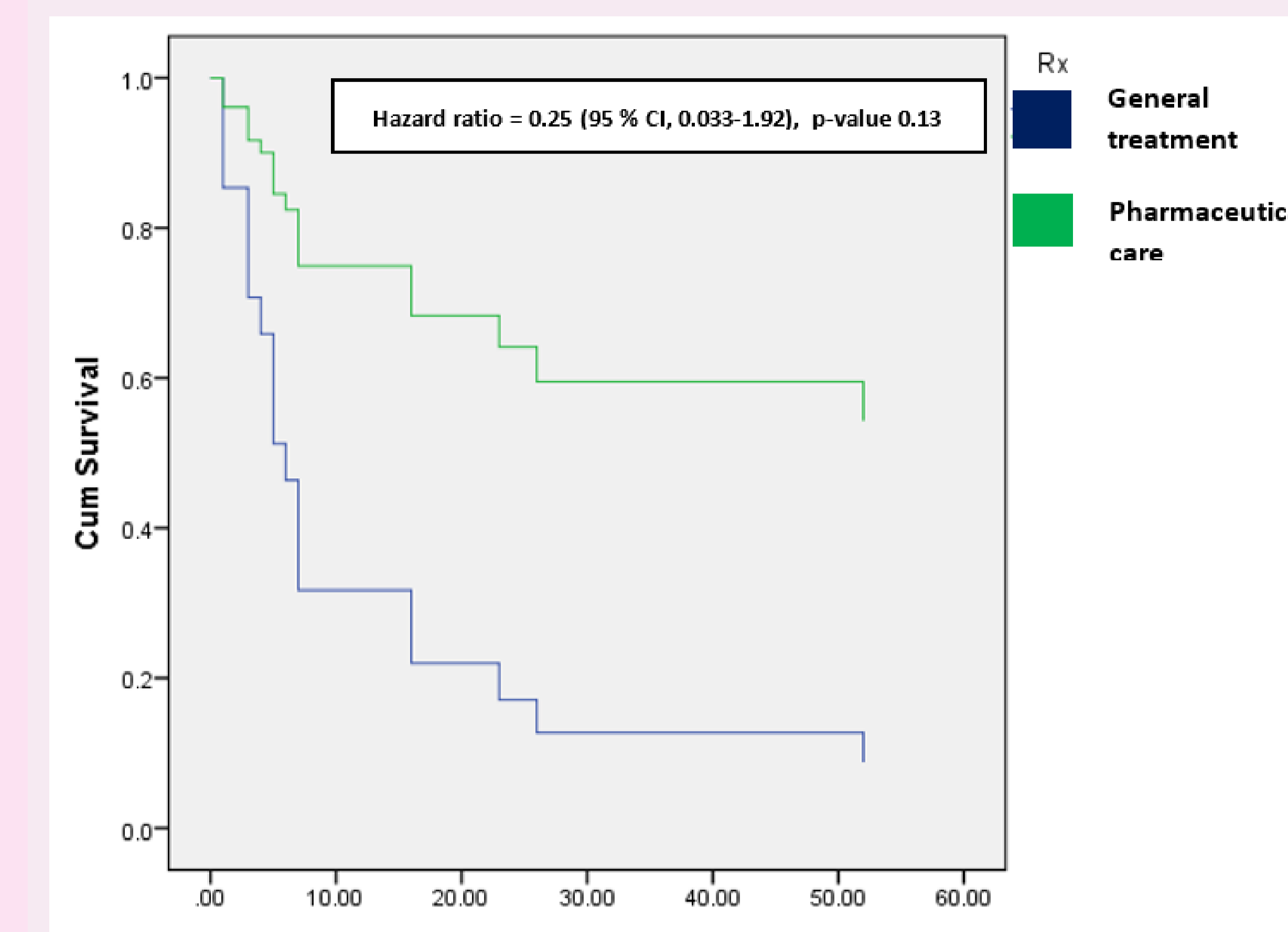


Figure 4 Time to severe exacerbation in 60 days

Conclusion:

The pharmaceutical care from RPH is one of a process for management in asthma acute exacerbation patients to maintain a good clinical outcome after discharge from the hospital. Our study shows a good clinical outcome of pharmaceutical care tends to reduce the risk of asthma severe exacerbation in 60 days 75 percent and the rate of readmission in 30 days around 3 times. And more patients in the intervention group and increasing time of observation may show an outcome significance.

Keyword: respiratory pharmacist, asthma exacerbation, pharmaceutical care

References

1. Basheti, Iman A. et al. "Improved asthma outcomes with a simple inhaler technique intervention by community pharmacists." Journal of Allergy and Clinical Immunology, Volume 119, Issue 6; 1537 - 1538.
2. David B.Price, et al. "Inhaler Errors in the CRITIKAL Study: Type, Frequency, and Association with Asthma Outcomes." The Journal of Allergy and Clinical Immunology: In Practice Volume 5, no. Issue 4 (July–August 2017): 1071-1081.e9.
3. Global Initiative for Asthma. 2021 GINA Report, Global Strategy for Asthma Management and Prevention. n.d. <https://ginasthma.org/wp-content/uploads/2021/05/GINA-Main-Report-2021-V2-WMS.pdf> (accessed March 11, 2022).
4. World Health Organization. THAILAND TOTAL DEATHS BY CAUSE [Internet]. Geneva: WHO; 2018 [cited 2022 Mar 11]. Available from: https://www.worldlifeexpectancy.com/country-health-profile/thailand?fbclid=IwAR2hg7PSY_IBOL7au5UoDSEH9WRcBggqUEv5e1q-279Y_gqrVJYDiTAN_Hh8