

Abstract

Objective: To streamline the management of bronchiolitis at Brookdale Hospital by decreasing unnecessary interventions by 50% in 6 months.

Introduction

The American Academy of Pediatrics (AAP) guidelines advocate against the continued utilization of nebulized beta-agonists, chest x-rays, steroids, and antibiotics for typical Bronchiolitis. Baseline data from Brookdale Hospital demonstrated that in 2021-22, approximately 40% of infants with bronchiolitis had chest x-rays and received albuterol.



Table 1 Summary of results.

Summary of results						
	Pre intervention		Post Intervention		Relative Reduction	Risk P value*
	%	n	%	n		
Total Patients		53		122		
Total Chest X Rays	39%	21	14%	17	64%	0.0013
Albuterol use	39%	21	14%	17	64%	0.0013
Antibiotics Use	7%	4	6%	7	18%	1
Steroid Use	19%	11	8%	10	57%	0.064
Median Hospital Length of stay (Hours)	38		28		26%	0.16**

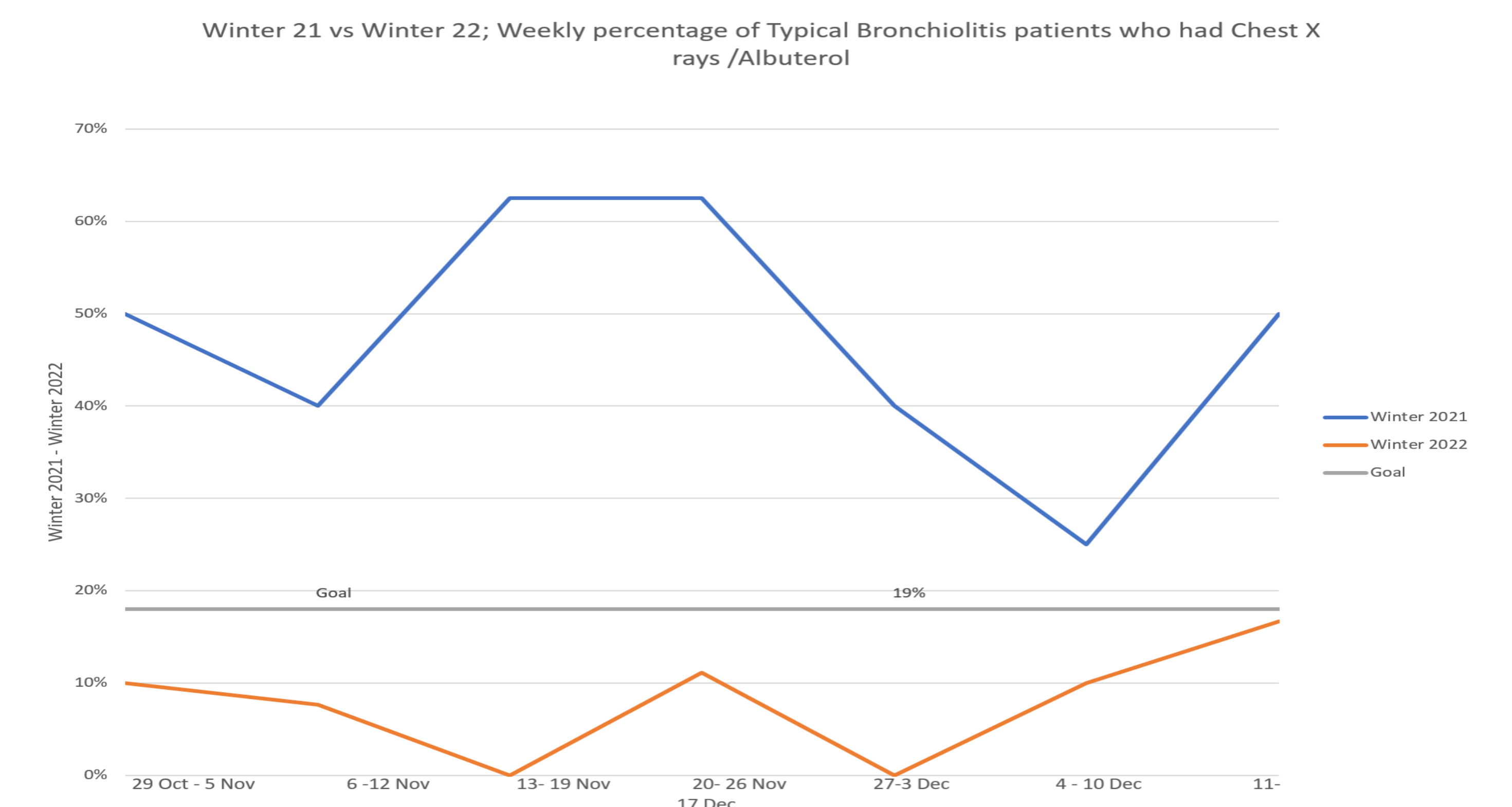
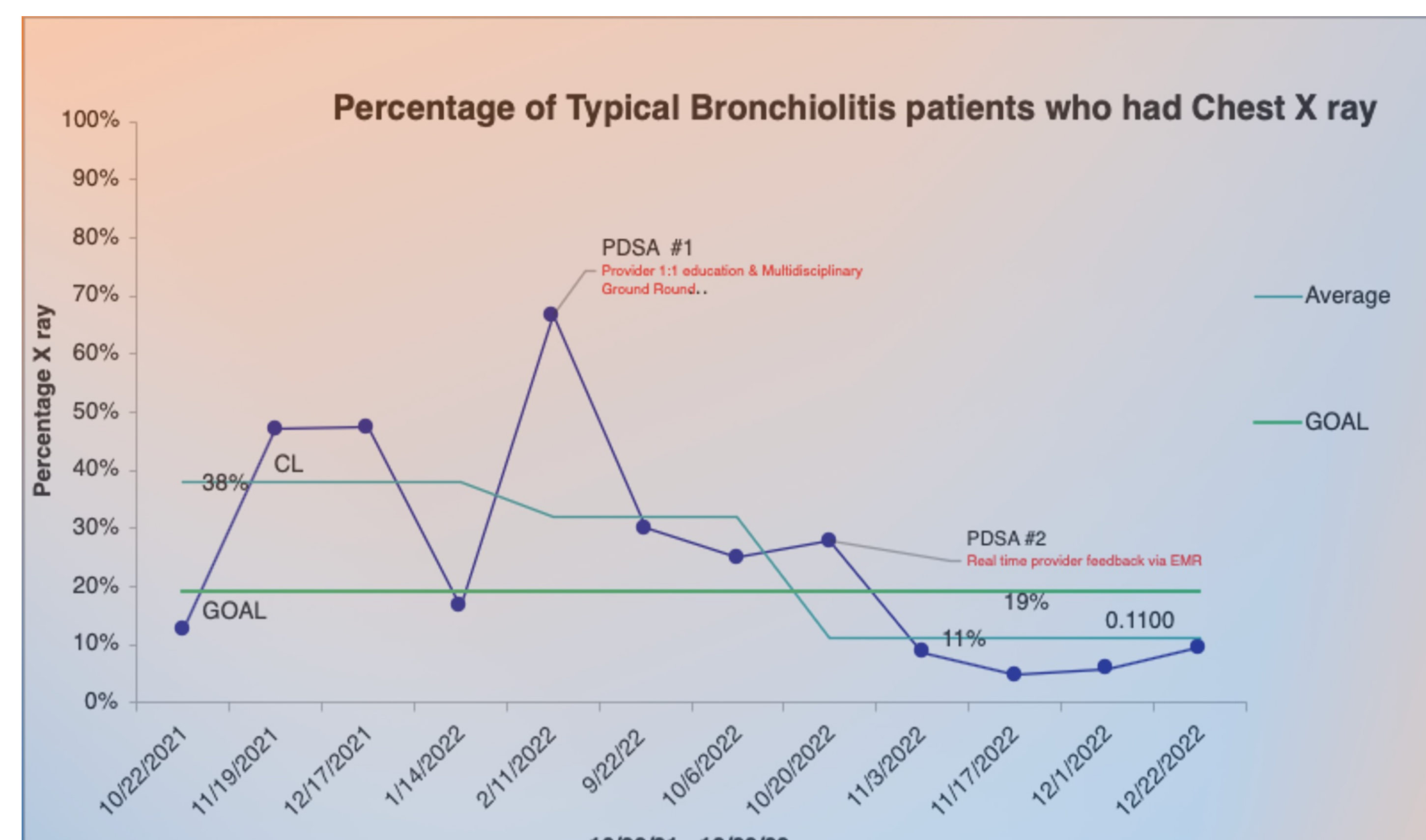
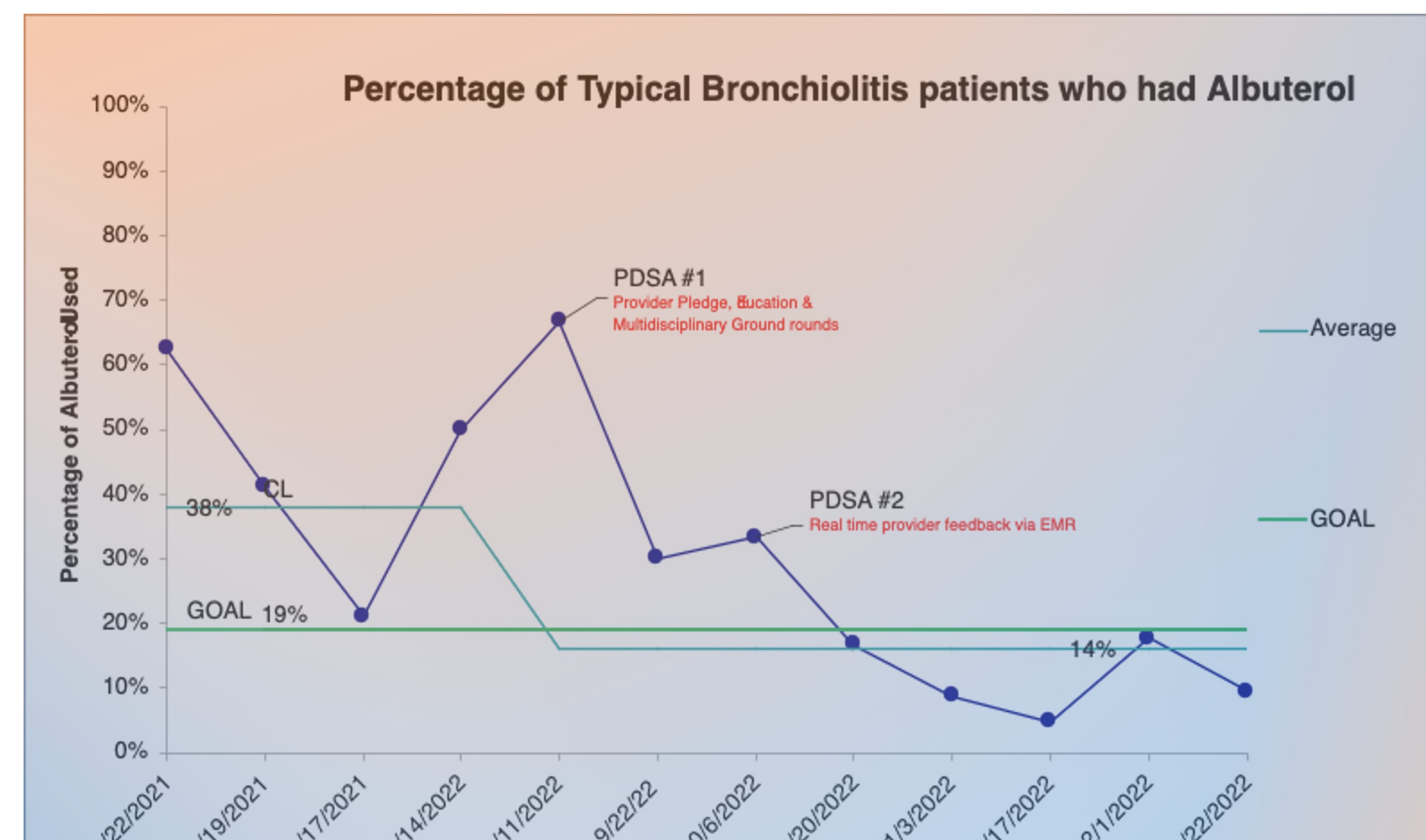
* Using Chi squared test of proportions with continuity correction
 ** Using Kruskal- Wallis rank-sum test
 n = number of patients

Methods and Materials

Retrospective data was collected to establish a baseline. We implemented a value stream mapping process of current care measures and identified areas for improvement. We tailored interventions through multiple Plan Do Study Act (PDSA) cycles in a stepwise approach.

Results

Data showed a decreasing trend on the control chart, indicating less albuterol and chest x ray usage. 64 % reduction in cumulative average utilization of chest X ray and albuterol (from 39% to 14%, p< 0.05 at 0.0013) See tab 1

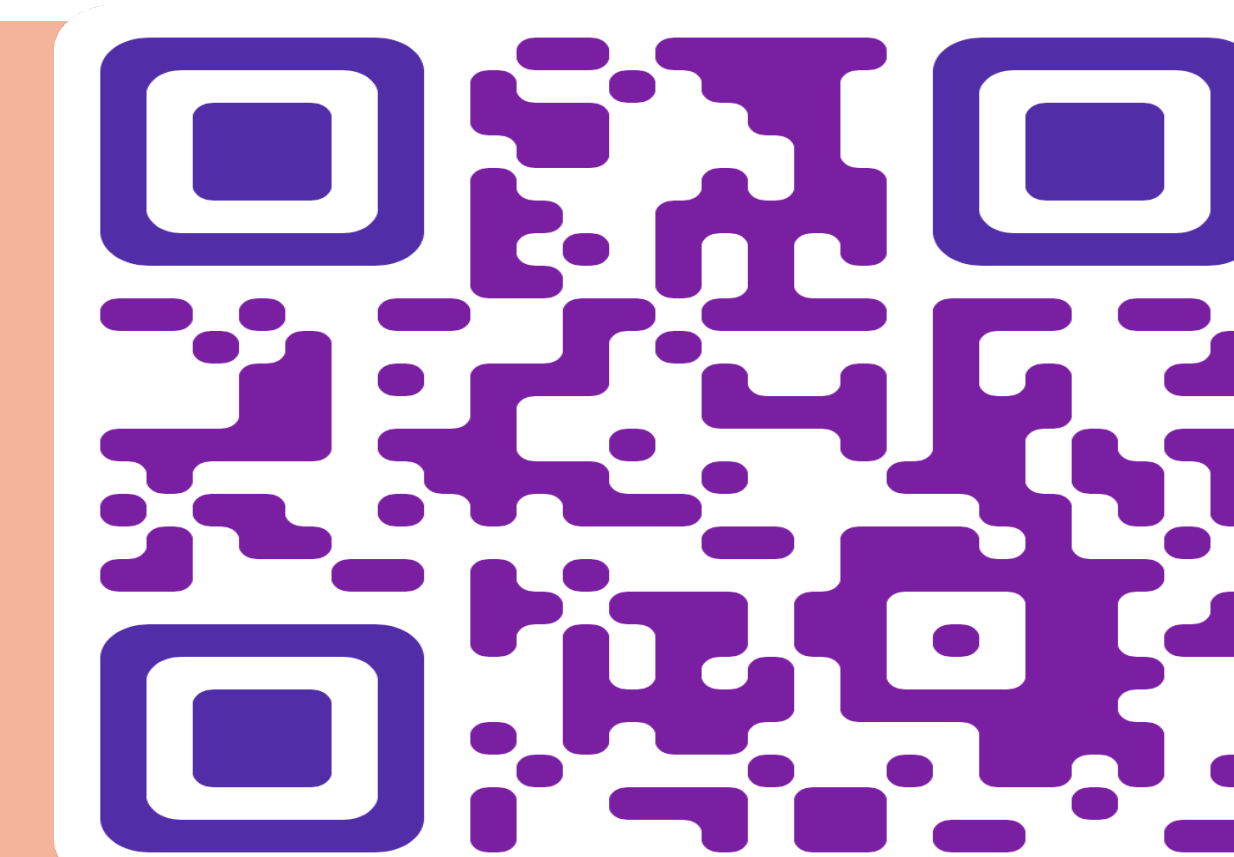


Discussion

Our QI initiative demonstrated the efficacy of the interventions including, 1:1 provider education, multidisciplinary grand round and symposium, parental education, and provider feedback in reducing the use of unnecessary interventions in the care of children with bronchiolitis in a community hospital setting while simultaneously demonstrating that such interventions do not significantly add to adverse outcomes such as increased length of hospital stay, rehospitalizations, PICU admissions, and death. These findings become even more significant given that community hospitals provide a significant proportion of pediatric care in the United States and, in general, are starved of resources and limit the allocation of such resources to pediatric care. Furthermore, decreasing chest x-ray utilization goes along with a reduction in its attendant adverse consequences; unnecessary radiation exposure, cost, time, and false positives which can trigger a diagnostic cascade.

Conclusions

This multidisciplinary improvement initiative resulted in fewer unnecessary interventions. Our approach, including a novel, real-time data dashboard, may have the potential to minimize unnecessary measures in other settings and diseases.



Scan the code for References[†]