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BACKGROUND

- Readmissions and Emergency Room visits following Thoracic Surgery are a major healthcare problem
- We hypothesized that the addition of a novel **Thoracic Surgery-specific, Post-Discharge Mobile App** to an existing home-care program will reduce ER visits and readmissions when compared to a home-care program alone

METHODS

- Single center cohort, controlled, non-randomized study
- Patients undergoing major lung resection from November 2016 to May 2018
- Homecare was provided by our Integrated Comprehensive Care (ICC) program - a nurse navigator led, hospital team based program which continues to provide up to 60 days post-discharge care for patients undergoing thoracic surgery (Developed at our center in 2012 and shown to reduce LOS, ER visits, readmissions and cost of stay)*
- The Mobile App was developed through SeamlessMD™ with education and symptom reporting capabilities specifically tailored to the needs of thoracic surgery with all data and alerts sent directly to the nurse navigator, prompting follow up as needed
- Data on post-discharge homecare alone (Control group) retrospectively collected and compared to prospectively collected data in the home care + a mobile app (ICC+App/Intervention group)
- Primary outcomes: 30 day post-op readmission rates and ER visits

RESULTS

	No App (n=408)	App (n=122)	P- Value
DEMOGRAPHICS			
Age (mean +/- SD)	65.16 +/- 14.20	66.61 +/- 9.35	0.29
Male (%)	50.98	40.98	0.053
Minimally Invasive (%)	66.58	56.56	0.043
Lobectomy	52.00%	66.39%	<0.001
Wedge Resection	31%	17.21%	<0.001
Segmentectomy	8%	13.93%	<0.001
Pneumonectomy	3.25%	2.46%	<0.001
Pleural/Other	5.75%	0.00%	<0.001
Smoker (%)	70.76	77.05	0.358
Diabetes Mellitus (%)	17.86	14.66	0.423
Cardiovascular Disease (%)	4.90	0.82	0.043
Chronic Kidney Disease (%)	2.21	1.64	0.7
FEV1 % predicted	83.83 +/- 19.77	88.47 +/- 21.91	0.0679
DLCO % predicted	71.91 +/- 19.96	78.11 +/- 16.42	0.0081
Liver Disease	1.96%	0.00%	0.122
Length Of Stay Median Number of Day (Range)	3(1-21)	3(1-15)	0.095

Table 1: Patient Characteristics in the two study cohorts

RESULTS CONT.

- Patients using the Mobile App were less likely to visit the ER than the control group (15.57% vs 29.41%, p=0.002) despite a higher proportion of open approaches and anatomic resections
- Fewer multiple ER visits in the App group (2.46% vs 7.84%, p=0.032)
- 30 day readmission rates were similar between the App and No App cohorts (6.56% vs 8.09%, p=0.59)
- Multi-variate regression analysis was performed to adjust for differences between the groups. The only variable associated with readmissions and ER visits was the usage of the Mobile App

	No App (n = 408)	App (n=122)	P-Value
ER Visits (%)	29.41	15.57	0.002
Multiple ER Visits (%)	7.84	2.46	0.032
Readmissions (%)	8.09	6.56	0.59

Table 2: 30 days post operative ER visits and readmissions in the two cohorts

CONCLUSIONS

The addition of a mobile App to a post-discharge home-care program significantly reduced the frequency of ER visits after thoracic surgery, in spite of higher proportions of thoracotomies and anatomic resections in the App cohort

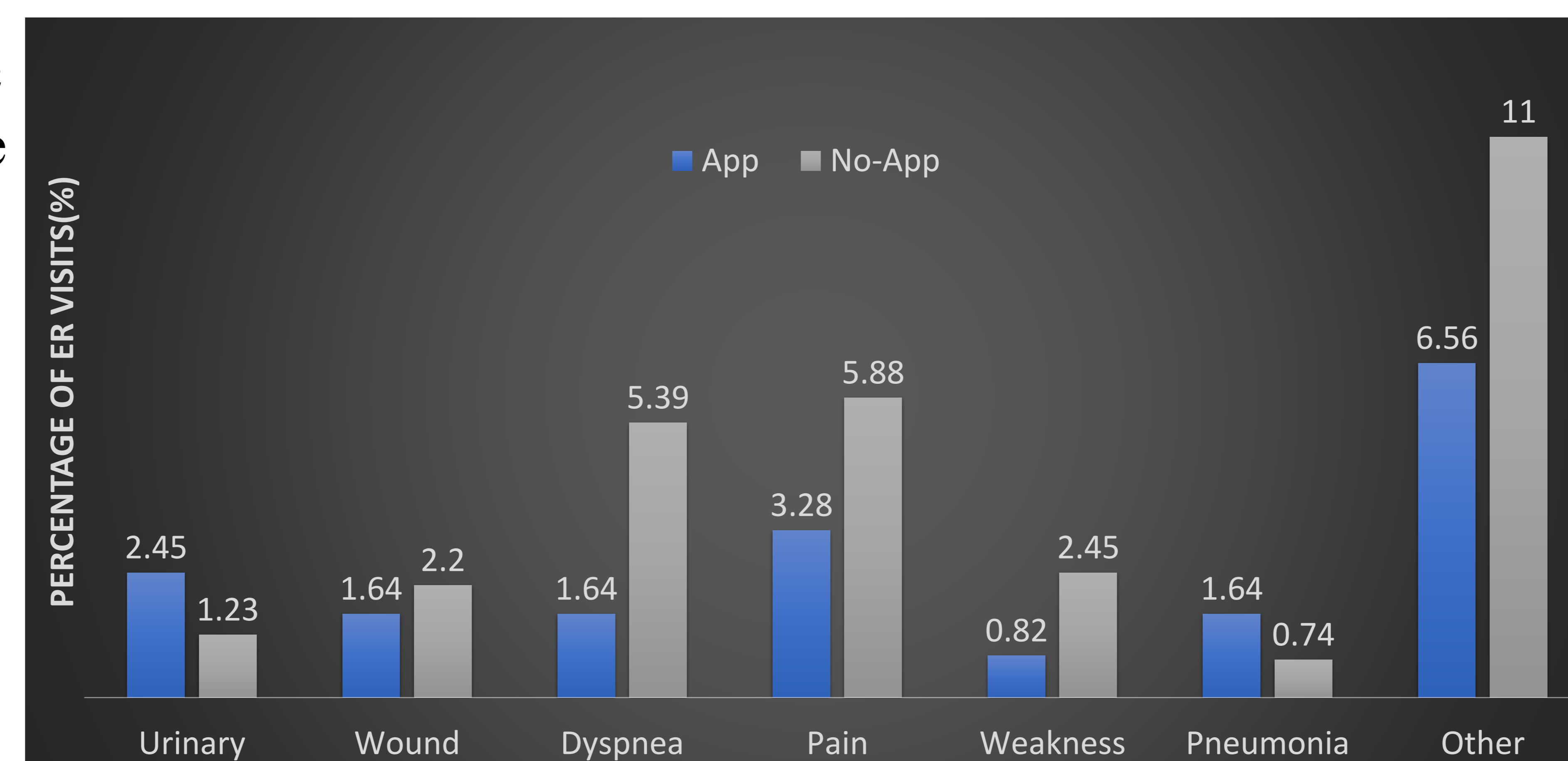


Figure 1: Reasons for 30 days post operative ER Visits (%)