Children's HOSPITAL & MEDICAL CENTER

Asthma Home Monitoring Program

Remote Patient Monitoring (RPM)
Operationalized

Disclosure – Christie Still BSN, RN

- No relevant financial or nonfinancial relationships or affiliations related to this topic
- Employed as Interim Manager of the Digital Health Team at Children's Hospital & Medical Center in Omaha, NE

The Burden of Pediatric Asthma

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"Asthma is the most common chronic disease in children"
(Ferrante & La Grutta, 0001)

- Patient population struggles with medication adherence leading to poor asthma control

Identify our Target Patient Population

Referral

- Patients' asthma had to be severe enough to warrant a referral to a specialist
- Pulmonology and/or Allergy teams

Asthma Questionnaire

- assigned to each patient prior to their appointment with their Pulmonologist or Allergist

Reporting

- High level hospital resource utilization

Selection Criteria

18 Months worth of data needed to capture Asthma Seasonality

- October 1, 2019 – April 30, 2021

Patients under the age of 5 were excluded

- At the time the patient filled out the Asthma Questionnaire
- Date the data was recorded

Two Eligibility Methods:

- Asthma Questionnaire
- Hospital Resource Utilization

Asthma Questionnaire

- In the past 12 months:
  - Greater than two emergency room or urgent care visit
  - Greater than two prescribed courses of Oral or IV steroids (Prednisone, Prednisolone, Decadron)
  - An overnight hospital stay; any positive value
- Heath Confidence Score less than 7
  - How confident are you that you can control and manage most of your health problems? 0 = Not Confident 10 = Very Confident

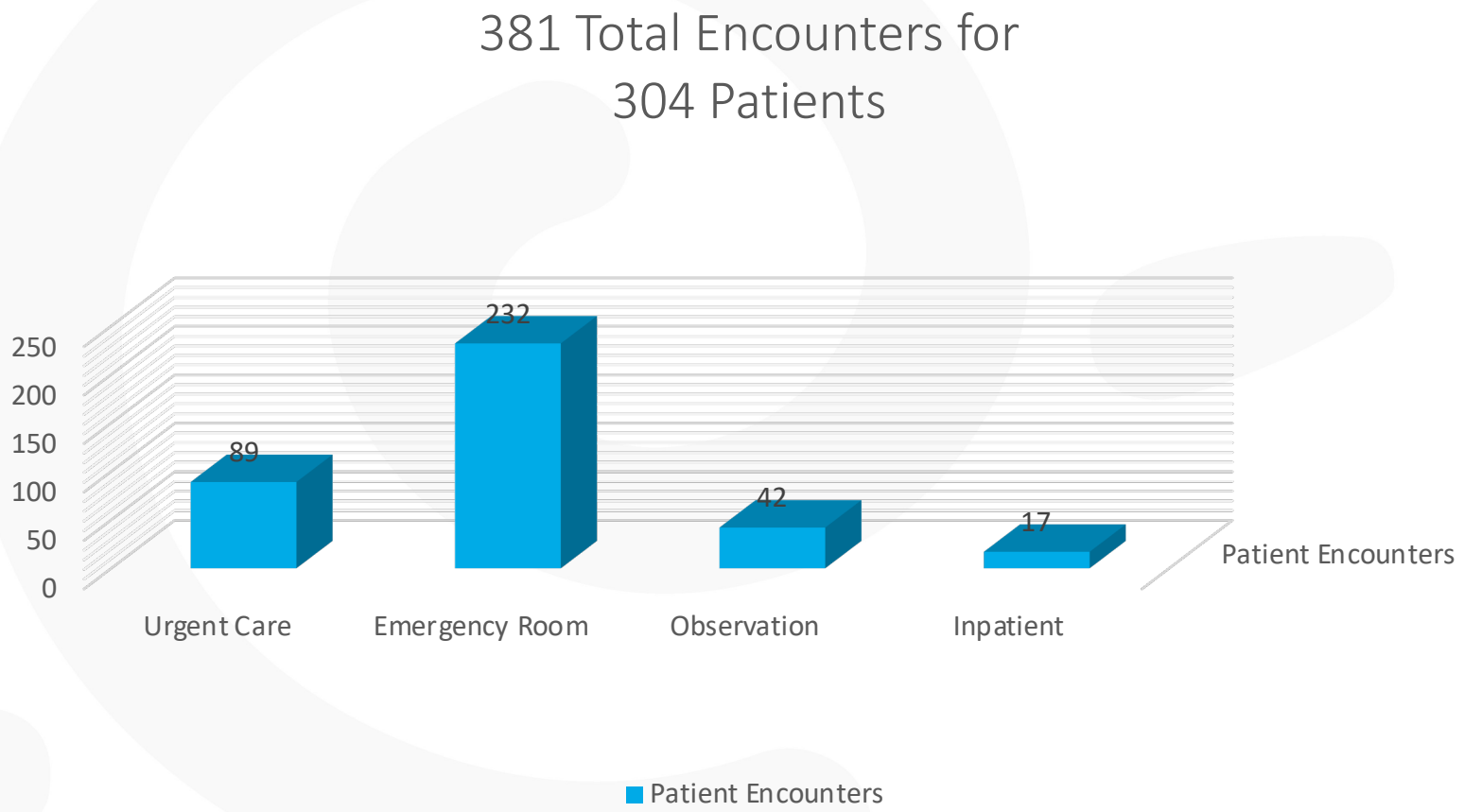
Hospital Resource Utilization

- Patient Visited a Children's Urgent Care, ED, or were Admitted for Observation/Inpatient criteria on Primary Diagnosis list
- Asthma diagnosis on the Patient's problem list

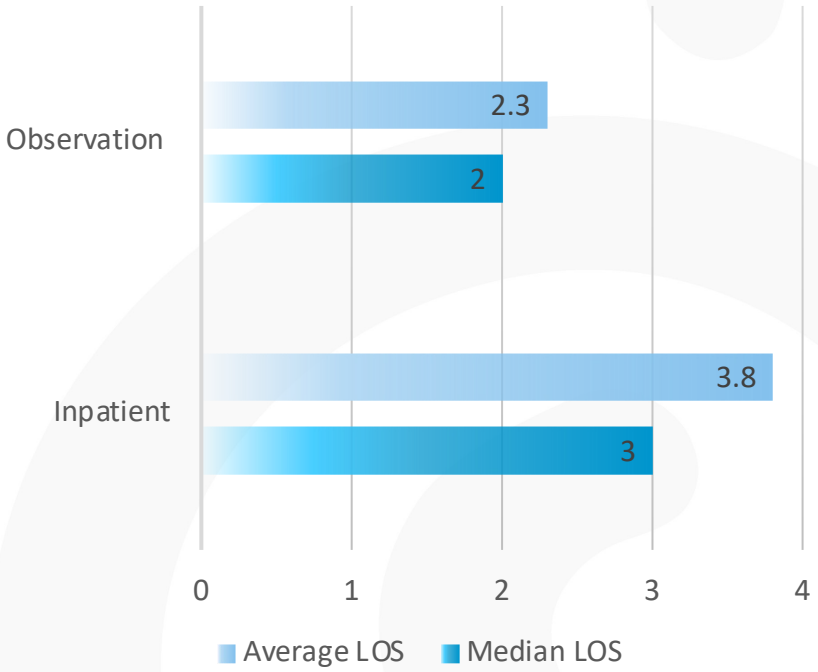
Patients with the following diagnosis on their problem list were excluded:

- Chronic Respiratory Failure
- Tracheostomy and Ventilator Dependence
- Neuromuscular Disorders
- Duchenne's (DMD)
- Muscular Dystrophy (MD)
- Spinal Muscular Atrophy (SMA)
- Cystic Fibrosis

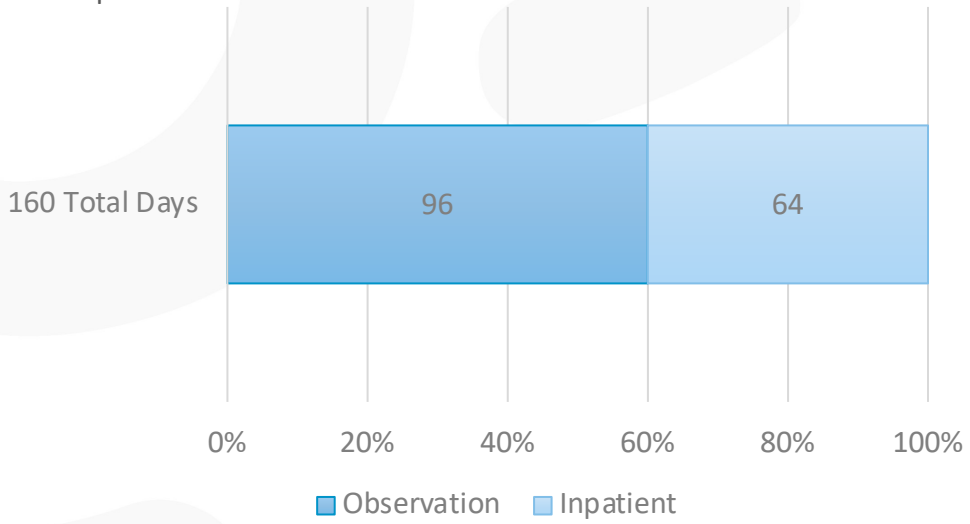
Baseline Data



LENGTH OF STAY (LOS)



Total Number of Hospital Days



RPM Program Goals

- Decrease rescue inhaler use
- Improve medication adherence
- Reduce asthma-related health system utilization

Implementation Team



IT

Business Leaders

Compliance



Managed Care Contracts





Epic Analyst



Legal



Physicians and Nurse Practitioners

Nurses and Respiratory Therapist



Central Billing Office





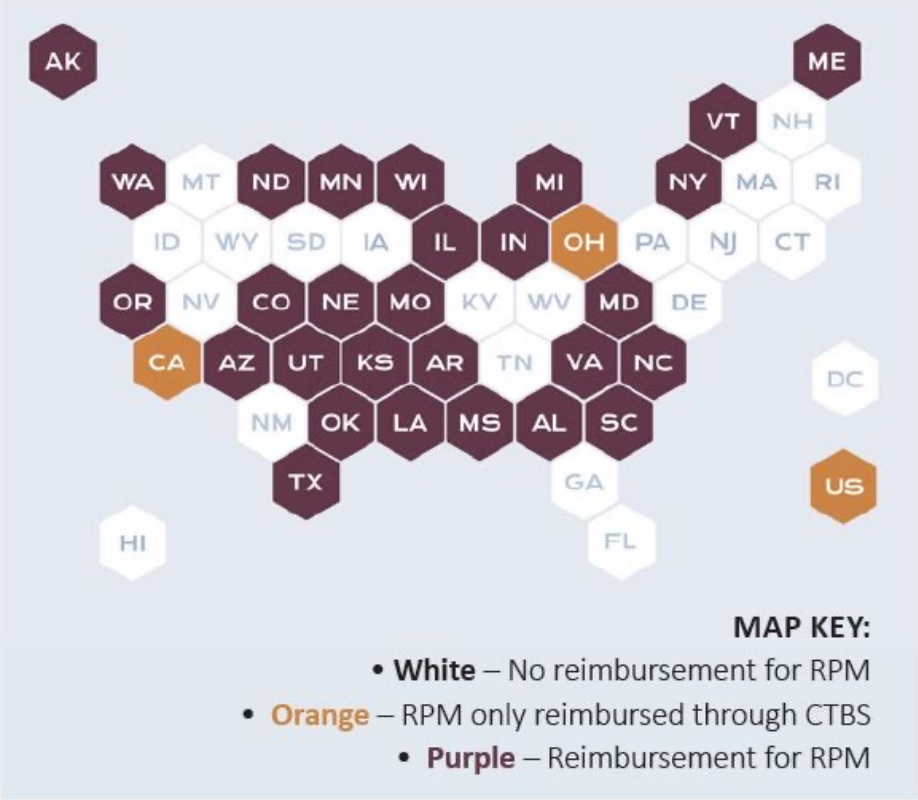
Marketing



Spring ‘22 Executive Summary

Children's HOSPITAL & MEDICAL CENTER

Remote Patient Monitoring (RPM)



Medicaid Reimbursement

Billing for RPM

Current Procedural Terminology (CPT) Codes

Providing Education and Set-up of Device
(1x per patient, per episode of care)

- 99453

16 days of data monitoring over a 30-day period

- 99454

Care management by clinical staff under the general supervision of a Physician or Advanced Practice Provider (APP)

First 20 min of interactive communication in a calendar month:

- 99457
- 99458 – each additional 20 min

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Propeller



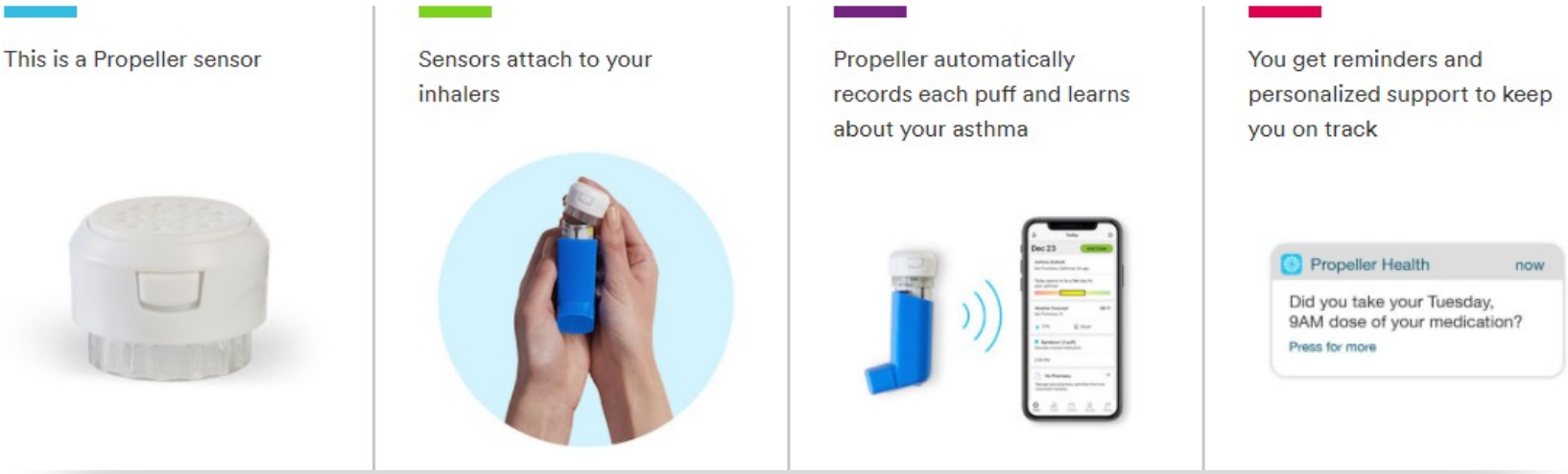
Control Your Child's Asthma with Propeller

Ask your child's care team about Propeller. To get started, visit ChildrensOmaha.org/Propeller or call (402) 955-5570.

If calling, select option 3 to leave a message with the nurse on duty. Then, a team member will help get you set up with a new Propeller account.

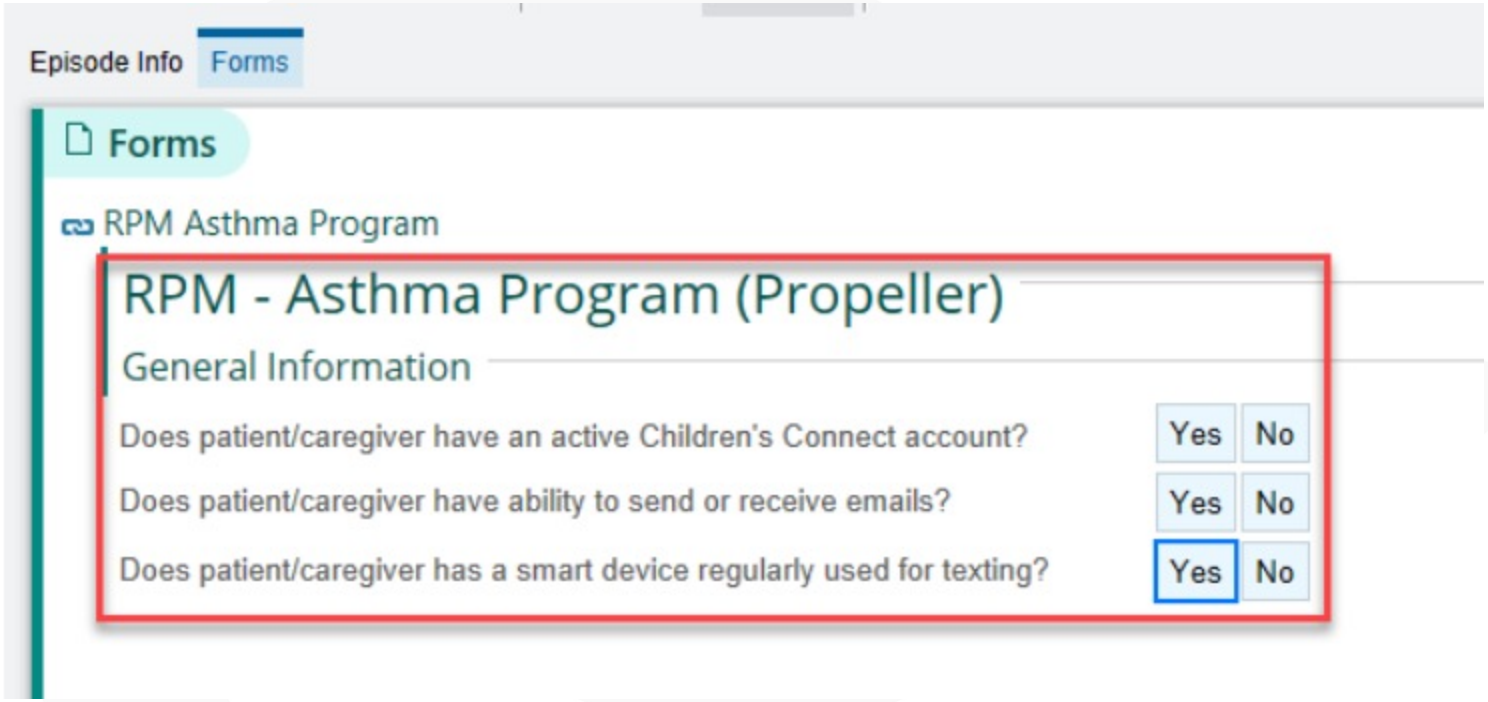
What is Propeller?

Propeller is an asthma-control program that's proven to reduce the use of rescue inhalers and help your child have more symptom-free days.



How does Propeller work?

Enrollment Criteria





Enter your medications to find a sensor.

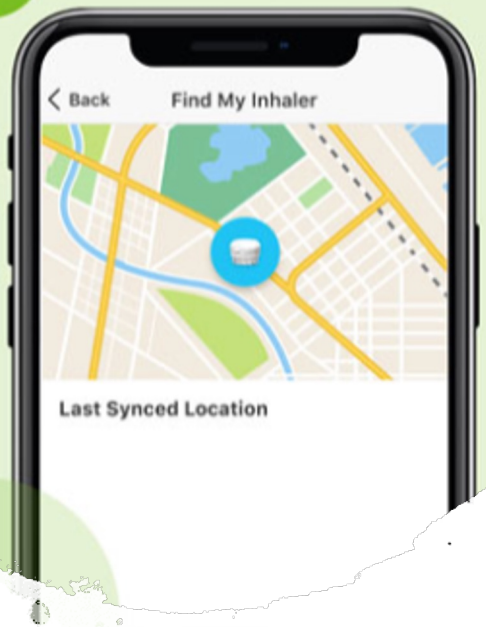


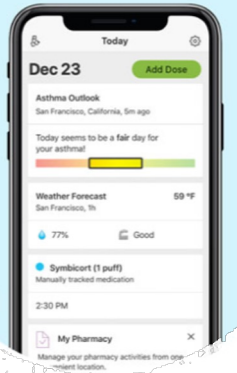
Sign into the Propeller app.



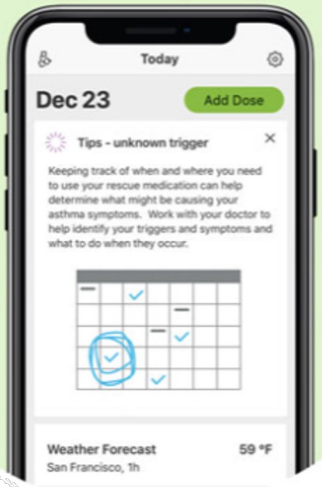
Attach your sensor to start tracking your medication use.

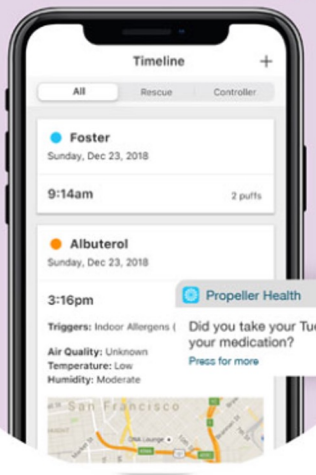
It’s easy to get started





The Patient Experience





Learn about your triggers

- Helps determine what may be causing symptoms

Daily Asthma Outlook

- Personalized forecast based on air quality and weather near you

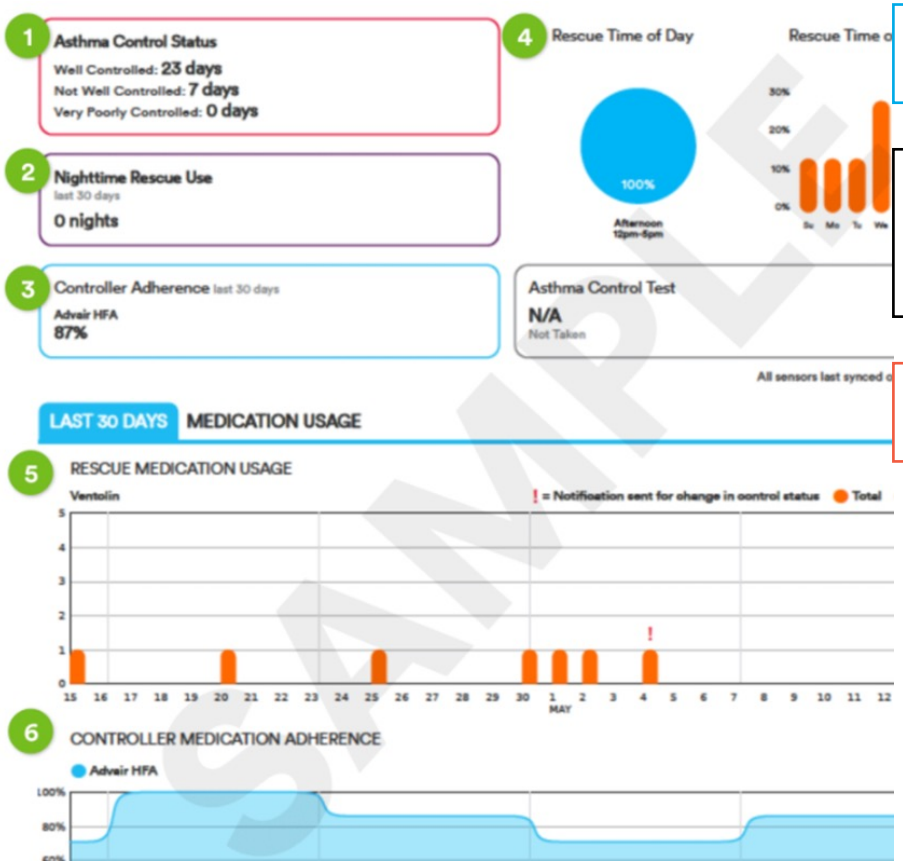
Never miss a dose

- Medication reminders
- Sensor chimes when dose is due

Find a lost inhaler

- “ring” on the sensor to help you locate it

Clinician Experience



1 Asthma Control Status

- Information based on how many times patient uses their rescue inhaler

2 Nighttime Rescue Use (10p-7a)

- May identify if other issues are present example: sleep apnea

3 Controller Adherence

- Compares the number of times patient used daily controller inhaler vs. what was prescribed

4 Daily and Weekly Average Rescue Trends

- Day of the week and time of day rescue inhaler use

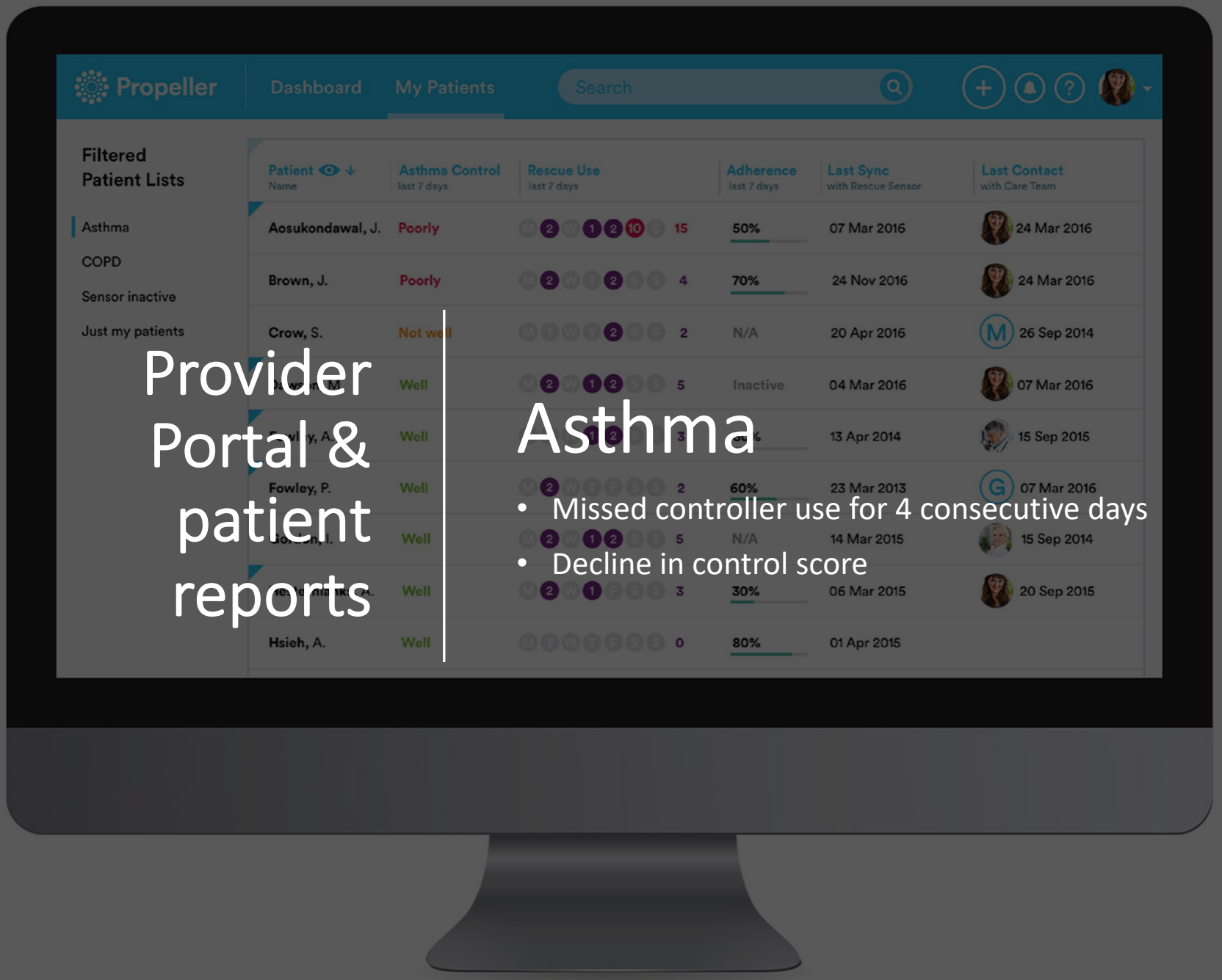
5 Graphs Rescue Med Use

- Number of puffs each day over 30 days
- Graph comparison to identify disease progression or need for med adjustment

6 Controller Med Usage Graph

- Percentage of controller use each day over last 30 days

SAMPLE



Provider Portal & patient reports

Asthma

- Missed controller use for 4 consecutive days
- Decline in control score

Where are we now?

Date	# of Enrolled Patients in Propeller RPM Pilot	Target # of Enrolled Patients in Propeller RPM Pilot (N)	% of Enrolled Patients against Propeller Pilot Target	# of Patients Syncing	% of Patients Syncing	% Patient Syncing Target >/= 80%
10-Mar	51	50	102%	32	63%	NO
17-Mar	51	50	102%	33	65%	NO
24-Mar	50	50	100%	33	66%	NO
31-Mar	50	50	100%	33	66%	NO
7-Apr	50	50	100%	33	66%	NO
14-Apr	50	50	100%	34	68%	NO
21-Apr	50	50	100%	34	68%	NO
28-Apr	50	50	100%	34	68%	NO
5-May	50	50	100%	31	62%	NO
12-May	50	50	100%	32	64%	NO

Sensor Inactive	% of Sensor Inactive	Never Synced	% of Never Synced	Change in ACS previous week Su-Sa	Adherence Alerts previous week Su-Sa
10	20%	9	18%	8	2
9	18%	9	18%	3	4
9	18%	8	16%	6	4
9	18%	8	16%	3	3
9	18%	8	16%	2	2
8	16%	8	16%	3	3
8	16%	8	16%	6	3
8	16%	8	16%	3	3
11	22%	8	16%	2	3
10	20%	8	16%	7	3

Evaluation

Began enrollment August 2021

Did patients meet their care plan goals?

- Program “graduation” date is 12 months

Determining Return on Investment (ROI)

- Billing analysis

Did we accomplish our clinical goals?

Revaluate our clinical data for patients enrolled in our pilot program

What we learned:

Need support in place to bridge the Digital Divide

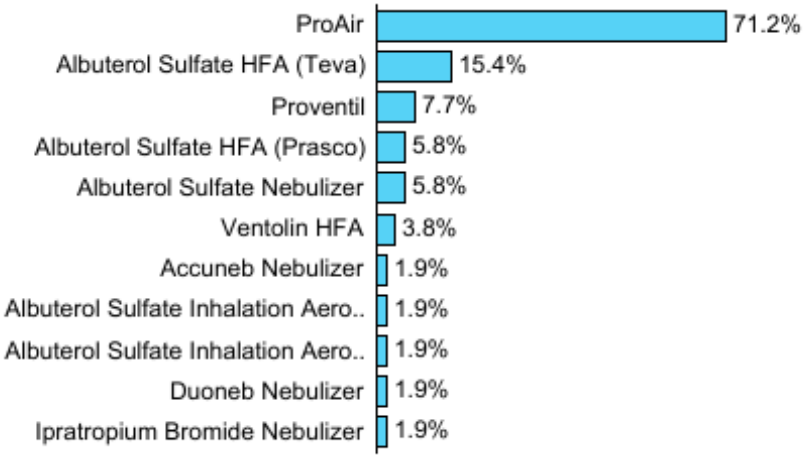
- Broadband access & Tech Literacy

RPM Device connectivity impacts patient engagement (Bluetooth vs. Cellular)

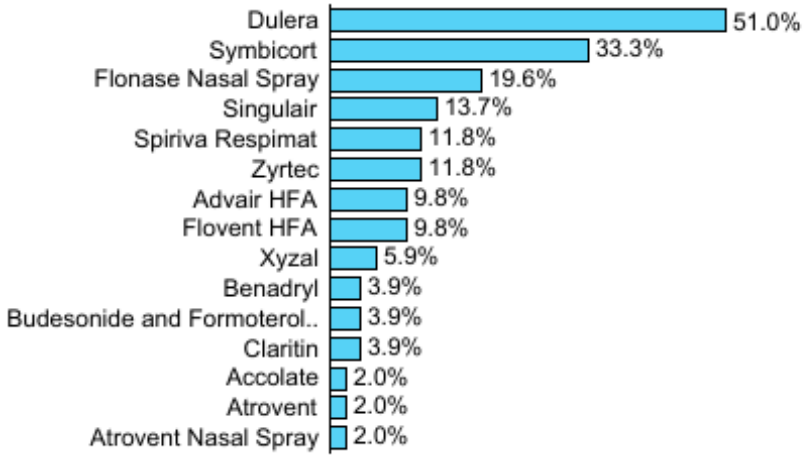
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Top Medications Ever on Plan

Rescue Meds



Controller Meds



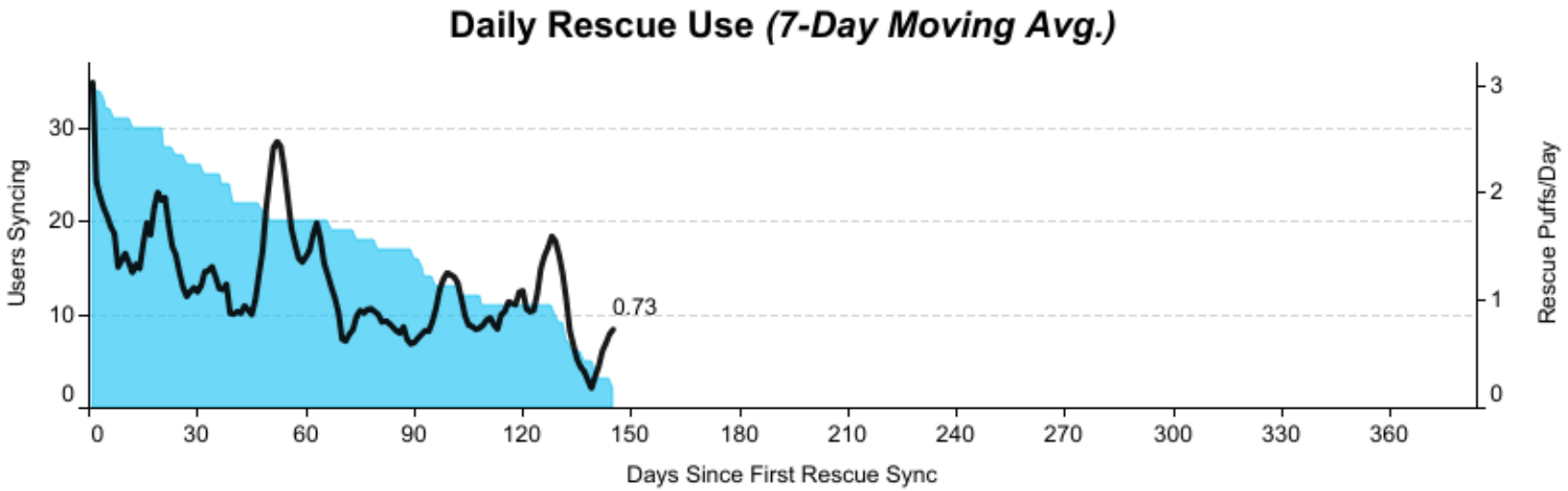
Data include medications that have been removed from users' plans.
Note: % of users may add up to over 100% due to users with multiple meds.

User Status: *All* | **Disease:** *All* | **Region:** *All* | **Age Bucket:** *All* | **First ACT Score:** *All*
Has Hub: *All* | **Rescue Med on Plan:** *All* | **Controller Med on Plan:** *All*
Enroll Date Range: *9/16/2021 - 2/16/2022*

Report Date: *2/24/2022*

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Rescue Use



The left Y axis (area) shows users syncing a rescue med on a given day.
The right Y axis (line) shows a 7-day moving avg. of rescue puffs on a given day.

User Status: *All* | **Disease:** *All* | **Region:** *All* | **Age Bucket:** *All* | **First ACT Score:** *All*
Has Hub: *All* | **Rescue Med on Plan:** *All* | **Controller Med on Plan:** *All*
Enroll Date Range: *9/16/2021 - 1/26/2022*

Report Date: *2/24/2022*

Private & Confidential

References

Ferrante, G., & La Grutta, S. (1AD, January 1). *The burden of pediatric asthma*. Frontiers. Retrieved May 23, 2022, from https://www.frontiersin.org/articles/10.3389/fped.2018.00186/full

L. (2022, May 10). *State Telehealth Laws and Reimbursement Policies Report, Spring 2022*. CCHP. https://www.cchpca.org/resources/state-telehealth-laws-and-reimbursement-policies-report-spring-2022/

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Questions?