2026 California Thoracic Society Annual Educational Conference

& Chronic Obstructive Pulmonary Disease Symposium

Thursday March 12, 2026-Sunday March 15, 2026

Earn up to 19 CME/CEU/MOC Credits

Jointly Provided by AKH Inc., Advancing Knowledge in Healthcare and the California Thoracic Society

PORTOLA HOTEL & SPA
AT MONTEREY BAY

Thursday March 12, 2026 (6 CME/CEU/MOC Credits)
COPD Symposium
Friday March 13, 2026 (6.5 CME/CEU/MOC Credits):
Advances in Interventional Pulmonary, Remote Monitoring in Pulmonary and Sleep Medicine, Approach to Symptom Management in Chronic Lung Disease and Critical Care
Saturday March 14, 2026 (6.5 CME/CEU/MOC Credits)
Sepsis and Shock, Extracorporeal Membrane Oxygenation, Inpatient Pulmonary Complications of Cancer Care
Sunday March 15, 2026
Fellow and Resident Track Symposium

California Thoracic Society
ATS Chapter Serving California and Arizona

AKH INC.
ADVANCING KNOWLEDGE IN HEALTHCARE

California Thoracic Society
Annual Conference
March 12-15, 2026
Portola Hotel and Spa, Monterey, CA

Friday March 13, 2026

Advances in Interventional Pulmonary

8:00 am – 8:10 am: Welcome and Introduction

8:10 am – 8:55 am: Keynote Address – Evolution of Bronchoscopy in Diagnosing Lung Nodules

- **Christine Argento, MD (Johns Hopkins) -** This speaker will discuss the recent advances in bronchoscopy from radial EBUS, to electromagnetic navigation, to robot technologies, and how advancement has improved lung nodule diagnosis.

8:55 am – 9:20 am: Implications of the new TNM9 staging for lung cancer

- **Colleen Channick, MD (UC Los Angeles) -** This speaker will discuss the new TNM staging system, how staging is currently performed, and how to approach staging in the patient with suspected lung cancer.

9:20 am – 9:45 am: Management of Central Airway Obstruction

- **Raed Alalawi, MD (Arizona-Phoenix)-** This speaker will discuss how interventional pulmonary practitioners can manage and treat central airway obstruction.

9:45 am – 10:10 am: The Changing Landscape of Pleural Disease Management

- **Joon Chang, MD (Stanford) -** This speaker will discuss advances in management of pleural disease by the interventional pulmonologist including when to use an intrapleural catheter, and when to use

10:10 am – 10:20 am: Question and Answer

10:20 am – 10:50 am: Break

Remote Monitoring in Lung Disease and Sleep Medicine

10:50 am – 11:15 am: Developing a home spirometry program

- **Steven Hays, MD (UC San Francisco) -** This speaker will discuss how to approach the development of a home spirometry program to monitor lung disease, how to use digital health technologies to integrate results into the EHR.

11:15 am – 11:40 am: Home Non-Invasive Ventilator Monitoring

- **Christal Hawkins, RRT (UC San Diego) -** This speaker will review how to monitor home non-invasive ventilators for compliance and for adequate control of sleep disordered breathing.

11:40 am – 11:55 am: Pro: Virtual Pulmonary Rehabilitation is Ready for Prime Time

- **Aimee Kizziar, RRT (UC Davis) -** This speaker will argue in favor of virtual pulmonary rehabilitation programs.

11:55 am – 12:10 pm: Con: Virtual Pulmonary Rehabilitation is not ready for Prime Time

- **Julia Rigler, BA. RRT (UC San Francisco) -** This speaker will argue against virtual pulmonary rehabilitation programs.

12:10 pm – 12:20 pm: Question and Answer

12:20 pm – 1:00 pm: Awards Ceremony

1:00 pm – 2:00 pm: Lunch

Hands On Session:

2:00 pm – 3:00 pm: Robotic Bronchoscopy **Raed Alalawi, MD (Arizona-Phoenix) & Joon Chang, MD (Stanford)** Cough Monitoring **Lauren Eggert, MD (UCSF)**; Endobronchial Ultrasound **Pranjal Patel, MD (Stanford)**; Home NIV **Krystle Leung, MD (Stanford)**

3:00 pm – 3:20 pm: Break

Approach to Symptom Management in the Pulmonary Patient

3:20 pm – 3:45 pm: Addressing the Unmet Needs of Refractory Chronic Cough

- **Krishna Sundar, MD FCCP FAASM ATSF (UC Davis) -** This speaker will discuss the etiology behind refractory chronic cough and the treatment approaches for management

3:45 pm – 4:10 pm: Frailty in Pulmonary and Critical Care Medicine

- **Jonathan Singer, MD MPH (UC San Francisco) -** This speaker will discuss the concept of frailty and how it impacts health in patients with lung disease. The speaker will also discuss how frailty can change as lung disease is treated.

4:10 pm – 4:35 pm: Palliative Care for the Patient with Chronic Lung Disease

- **Grace Amadi, MD (UC Davis) -** This speaker will discuss how palliative care teams can benefit patients with chronic various lung disease including ILD, COPD, and pulmonary hypertension.

4:35 pm – 5:00 pm: Palliative Care for the Patient with Critical Illness

- **B. Corbett Walsh, MD, MBE (UC Los Angeles) -** This speaker will discuss how palliative care teams can benefit the inpatient with advancing lung disease, the importance of advance care planning, and palliative care in the intensive care unit.

5:00 pm – 5:10 pm: Question and Answer

5:30 pm – 7:00 pm: Women in Pulmonary, Critical Care, and Sleep Medicine (NON-CME) – Food and beverages will be served

Dr. Steven Hays is a Professor of Medicine at the University of California, San Francisco (UCSF), where he also serves as the Medical Director of the UCSF Advanced Lung Disease and Lung Transplant Programs. Dr. Hays completed his medical degree at the University of Kansas, followed by pulmonary/critical care and lung transplantation fellowships at UCSF and Stanford. His clinical practice focuses on advanced lung diseases and lung transplantation. Dr. Hays is involved in cutting-edge research to improve outcomes for patients with advanced lung disease and lung transplants, contributing to numerous peer-reviewed publications and clinical trials.

Home Spirometry in Lung Transplantation

Steven Hays, MD

Professor of Medicine

Medical Director Lung Transplant Program and Transplant Digital Health

University of California, San Francisco

Disclosures

- I have the following relationships with ACCME defined ineligible companies:
  - CareDx Advisory Board
- I **WILL/WILL NOT** discuss off-label use and/or investigational use of any drugs or devices.

Transplant Care Now

Follow up clinic at 3, 6, 12, 15, 18, 21 months….

To the lab for weekly or monthly blood draw….

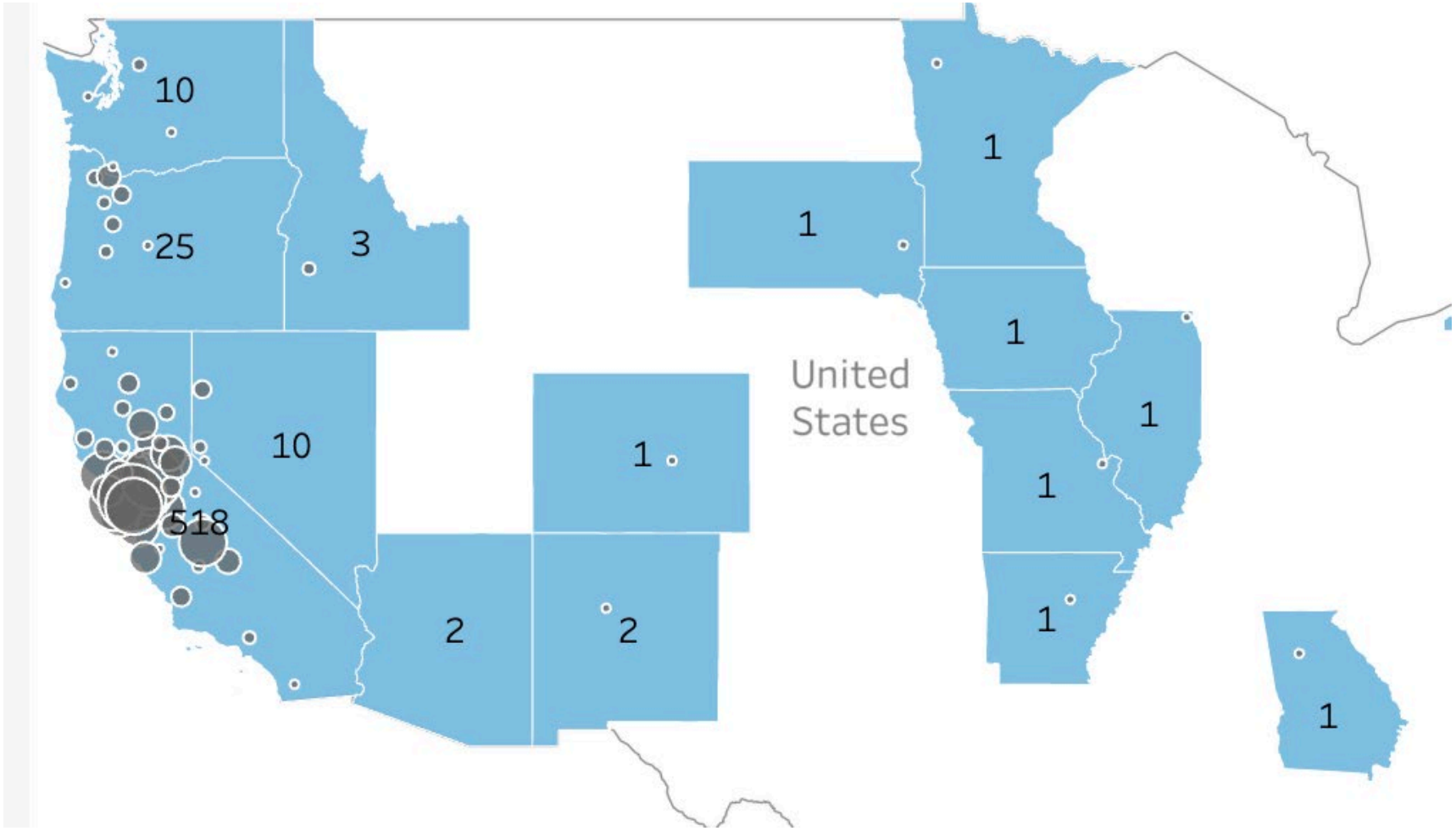
To the hospital for scheduled surveillance (PFTs, CT, Bronch) at 3, 6, 12, 18, 24 months….

Standard Immunosuppression Protocol

Standard Prophylaxis Protocol

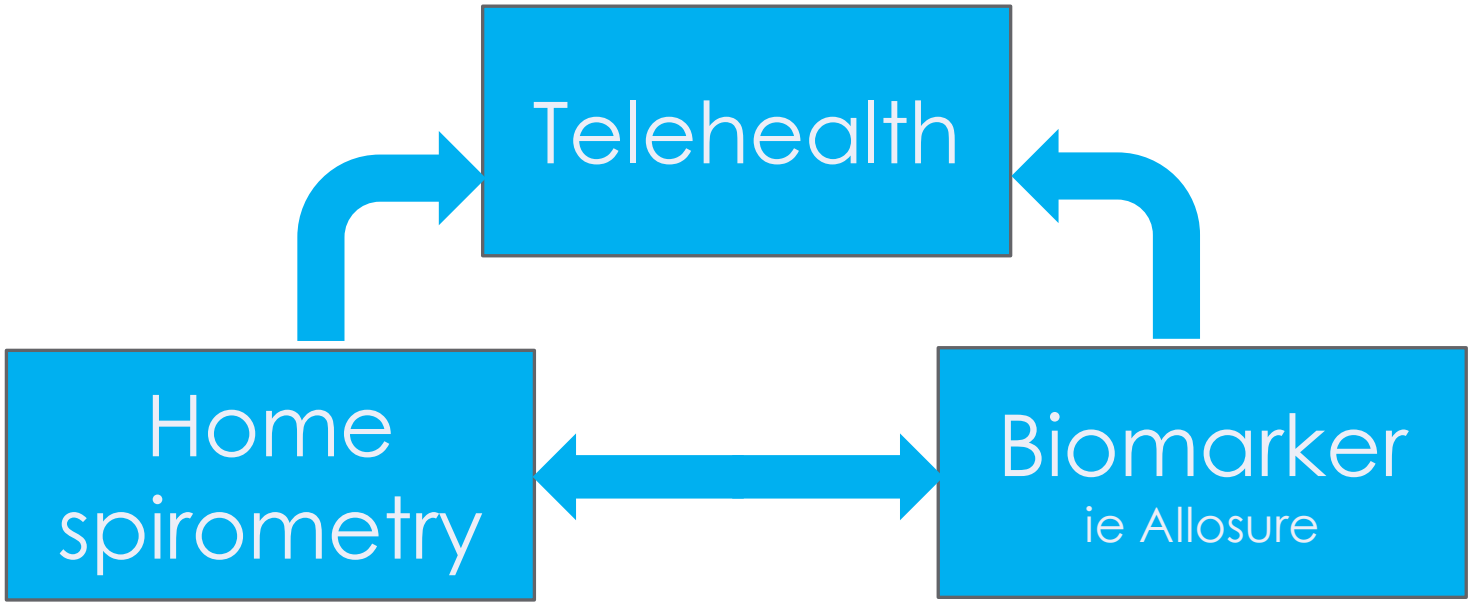
Not patient centric, not personalized and not precision medicine

Patients are Widespread



Modern Transplant Care

↑access, maintain “high touch” care, ↓reduce patient burden



Why? Portable, Inexpensive, Accurate

Diseases monitored with Home Spirometry?

- COPD
- Interstitial Lung Disease
- Asthma
- Cystic Fibrosis, Neuromuscular Disease
- Lung Transplantation

American Journal of Respiratory and Critical Care Medicine. 2025. Khor YH, Poberezhets V, Buhr RG, et al.

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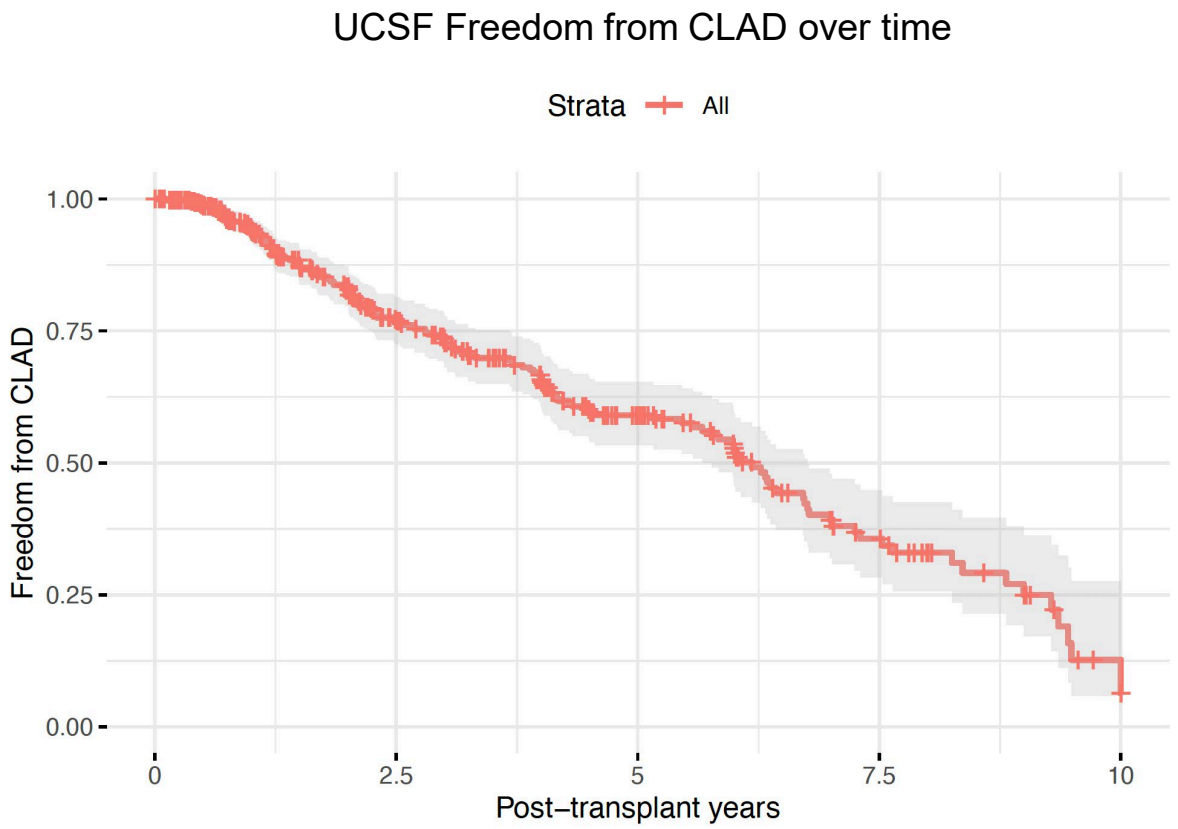
Why Monitor Lung Function in LTx?

- Lung transplant recipients have high risk of graft dysfunction
- Decline in FEV_1 often precedes symptoms
- Key complications: acute rejection, infection, CLAD
- Early detection allows earlier intervention

Early Detection of both Acute and Chronic Lung Allograft Dysfunction is important

Delays in detection and treatment may lead to worse outcomes



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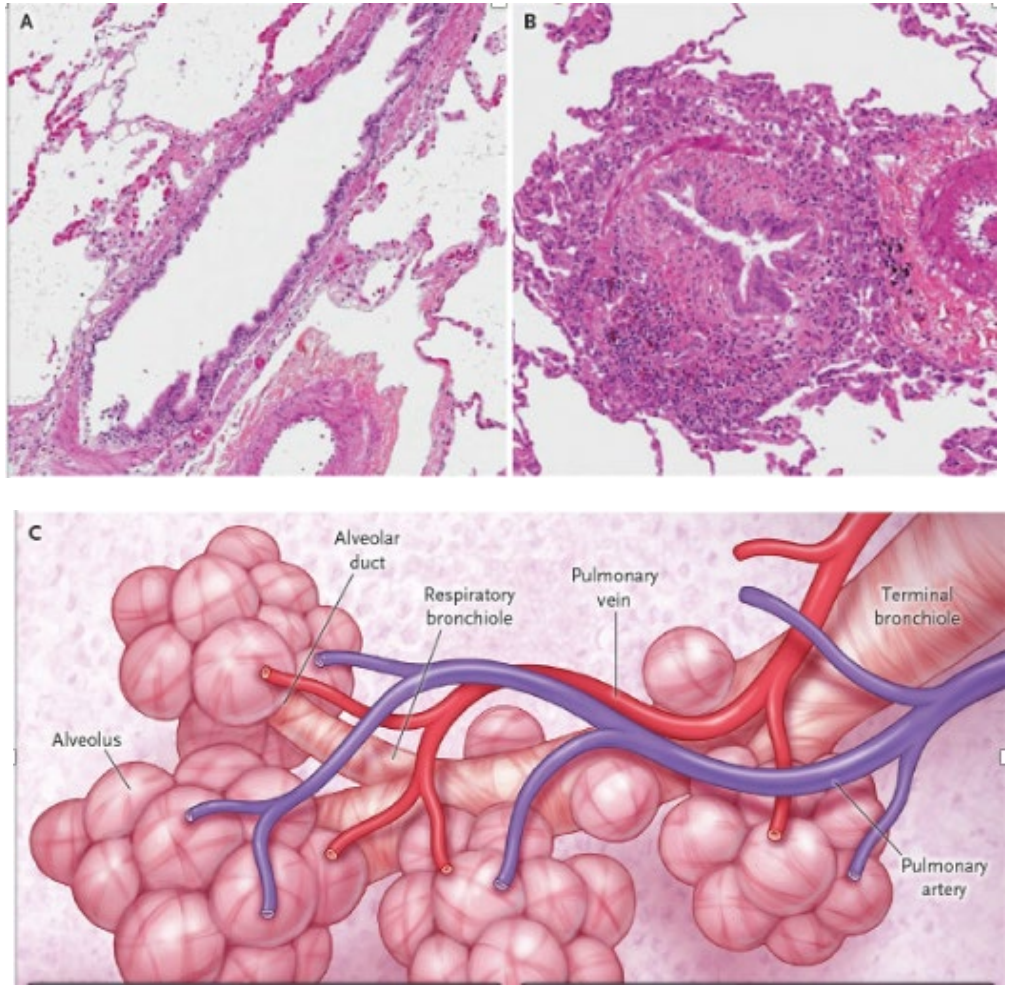
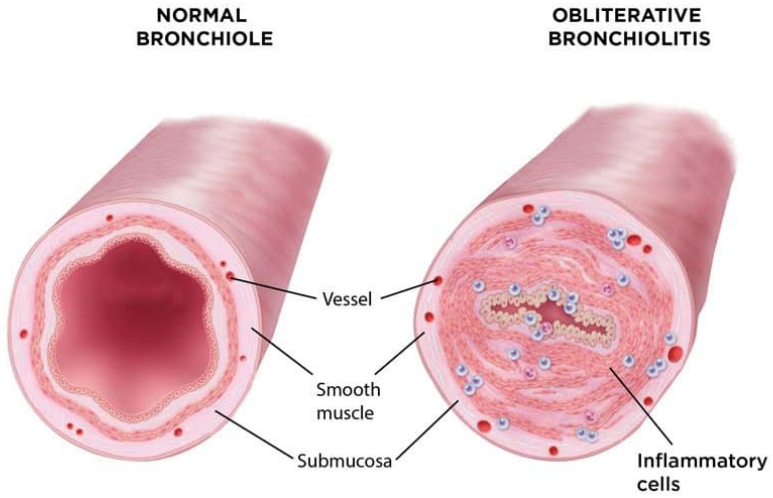
Bronchiolitis Obliterans





Barker AF et al. N Engl J Med 2014;370:1820-1828

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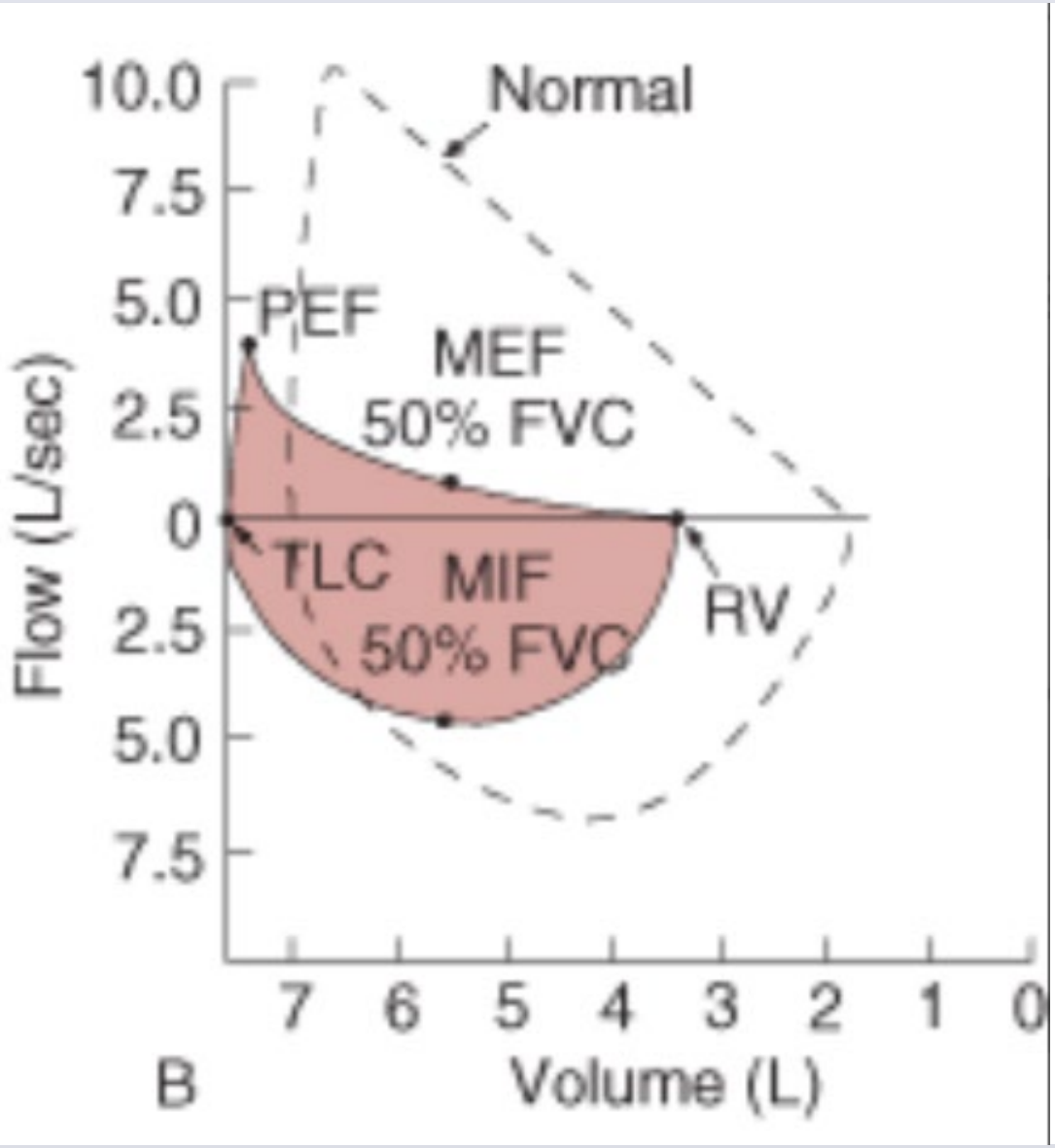
Bronchiolitis Obliterans Diagnosis

Diagnosis by biopsy is unreliable

Diagnosis is therefore clinical (BOS) based on persistent **obstructive pulmonary defect** (FEV1<80% of baseline)

Limitations of Lab Spirometry

- Travel and Expense
- Infrequency of measurement: Clinic spirometry typically every 1–3 months
- Early changes in lung function may be missed



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Home spirometry advantages and prior limitations

- Home spirometry provides the potential advantages
  - Frequent monitoring
  - Facilitates telehealth
  - Avoiding aerosol-generating procedures in healthcare setting
- Challenges identified from prior work
  - Maintaining adherence
    - Providing feedback
    - Providing engagement
- Non-adherence to home spirometry is related to a decreased freedom from BOS

Prior experience with home spirometry in Lung Transplantation

Adherence to home spirometry generally decreases over time due to multiple factors

- Lack of understanding
- Lack of feedback
- Lack of engagement

Non-adherence to home spirometry is related to a decreased freedom from BOS

Goals of home spirometry

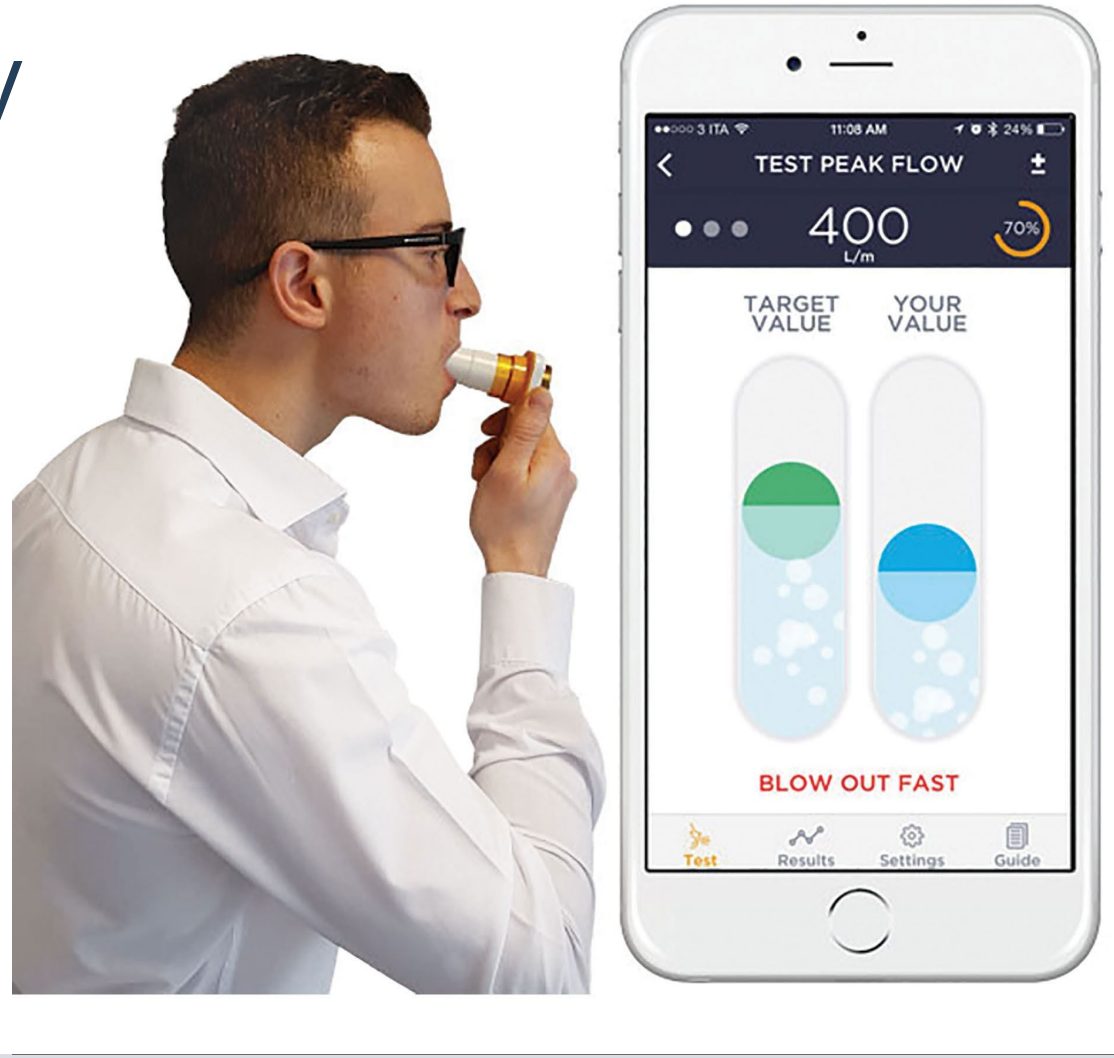
Obtain spirometry on a weekly basis to survey for graft dysfunction

Obtain spirometry in real time to assess remote symptoms

Identify changes in lung function earlier
- Diagnose acute graft dysfunction
- Diagnose CLAD earlier

Collect feedback

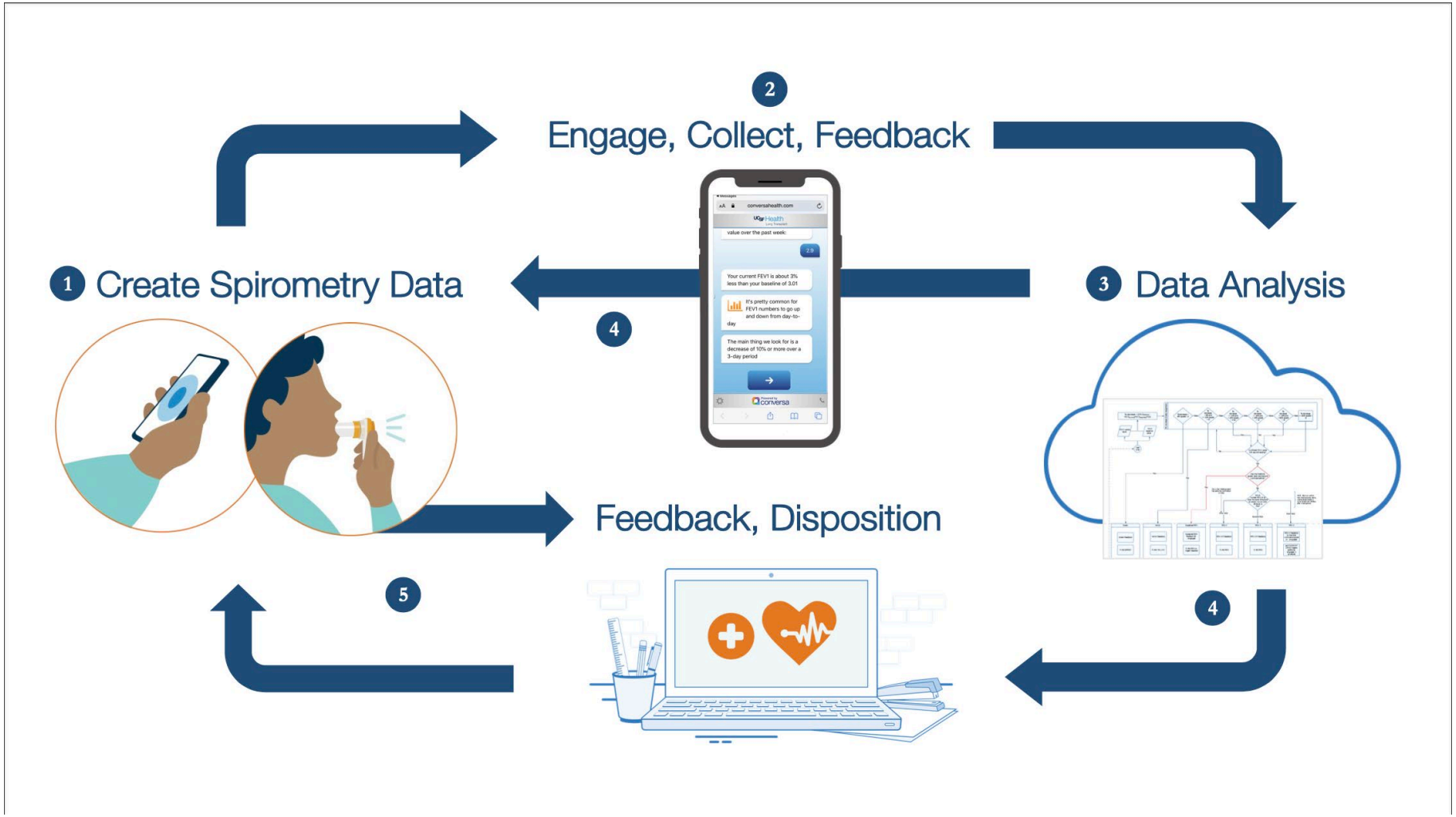
Iterate based on experience and feedback



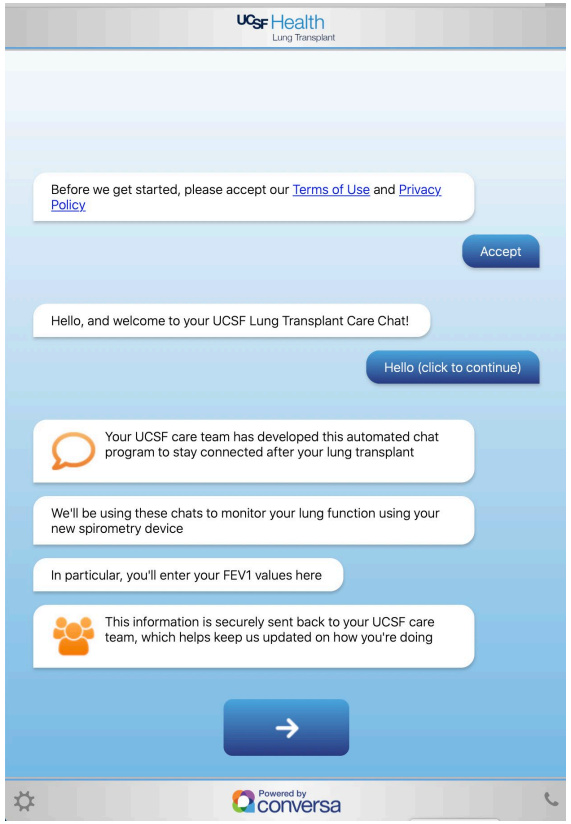
Anticipated Needs

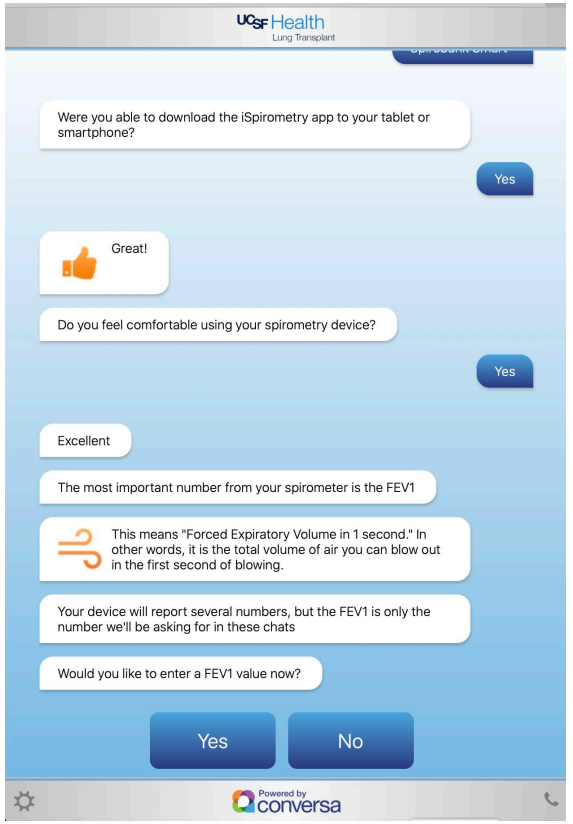
- ✓Needs to be easy to use
- ✓Needs to provide accurate data
- ✓Needs to manage data flow
- ✓Needs to manage alerts
- ✓Needs to give feedback to patients
- ✓Needs to provide data to the care team
- ✓Needs to be sustainable

Engage, Collect, Feedback, Disposition, Track

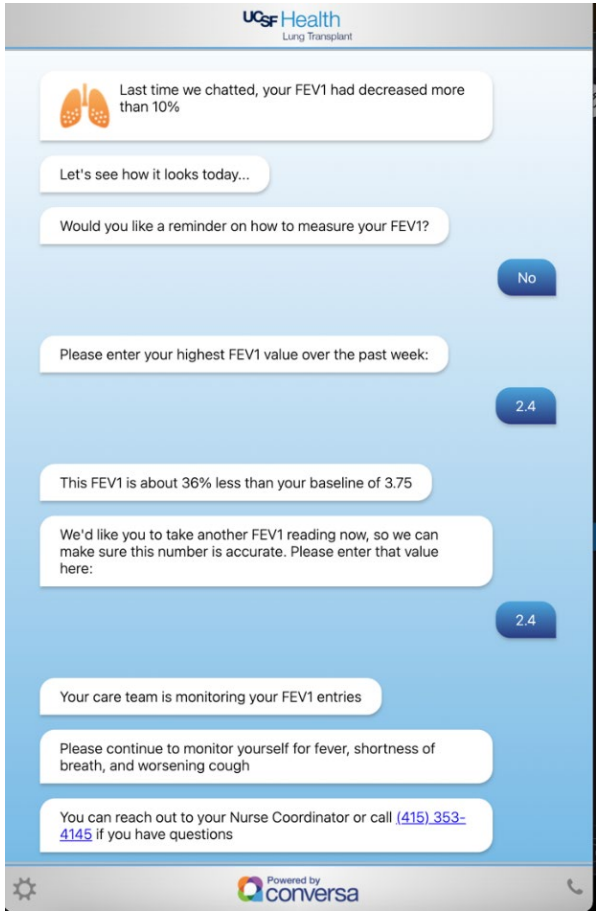


Engagement Platform





Real-time feedback and FEV_1 reports



cdhi

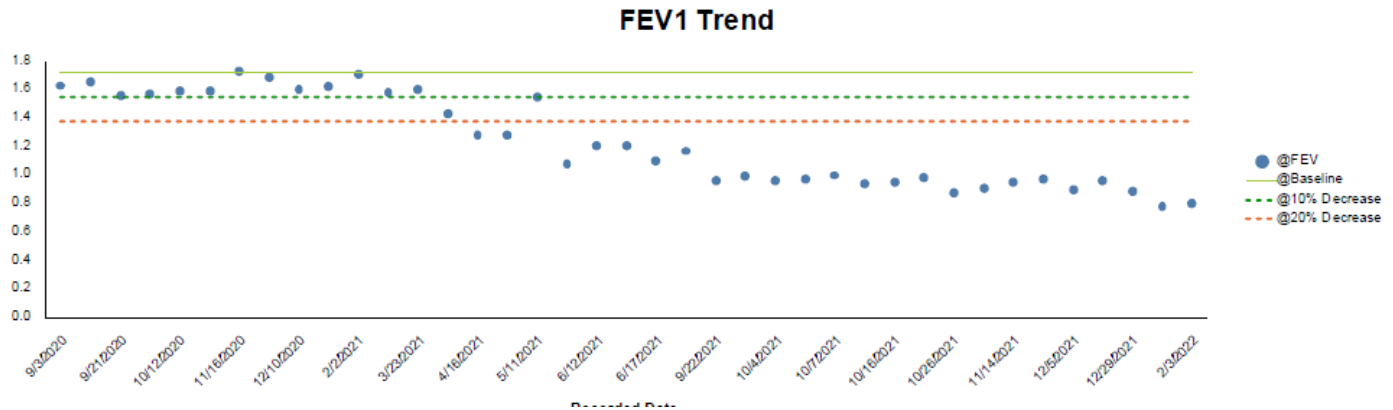
UCSF Digital Patient Experience

Lung Transplant Virtual Care - Patient Level Results

Center for Digital Health Innovation

Report Date:3/25/2022 6:20:45AM

MRN	Enroll Date	Program Month	FEV1 Count	Most Recent Value	Median (IRQ)	Baseline FEV
	08/10/2020	19	64	0.81	1 (0.96 - 1.44)	1.73



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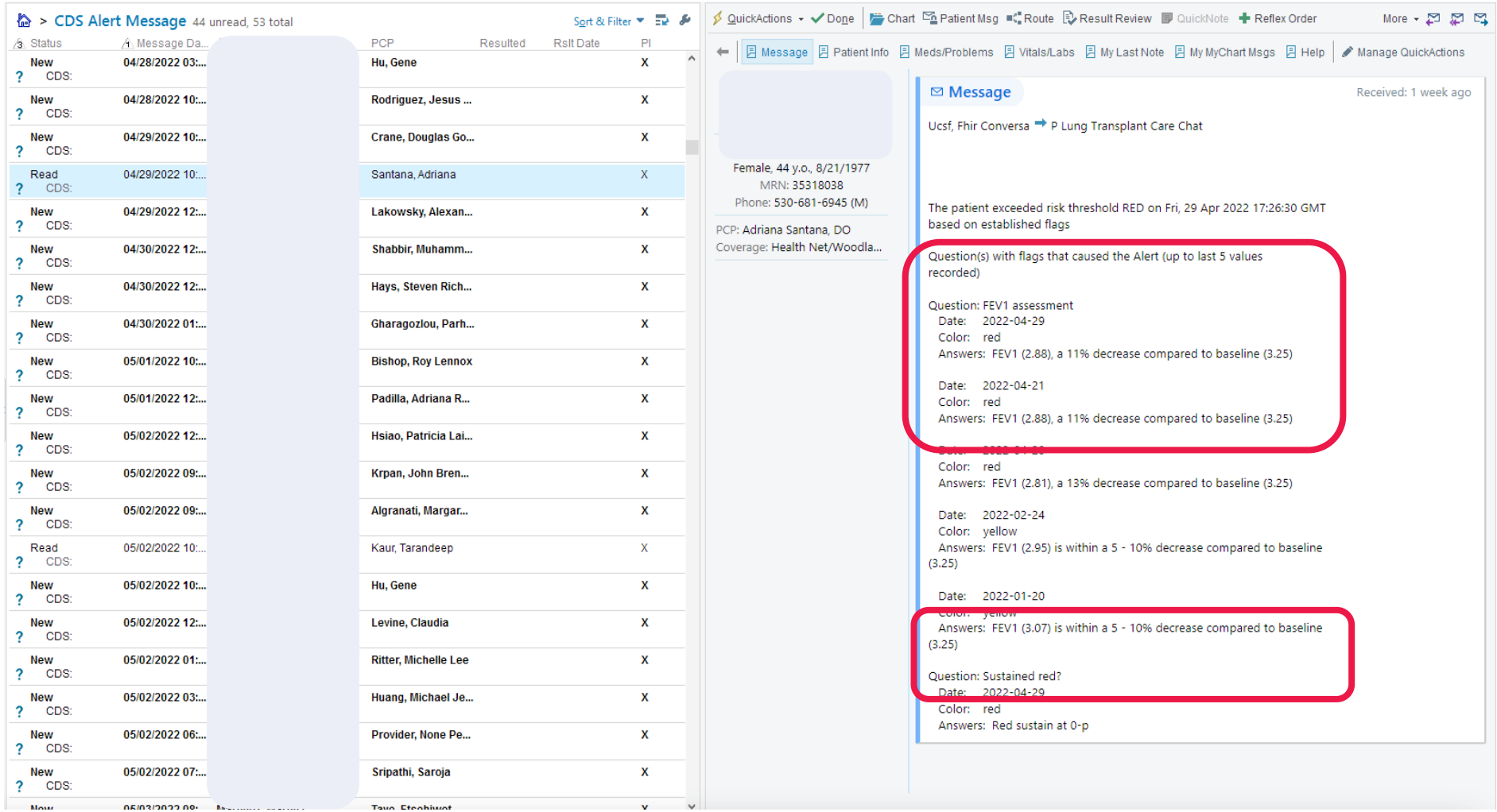
Home spiro alerts in EMR



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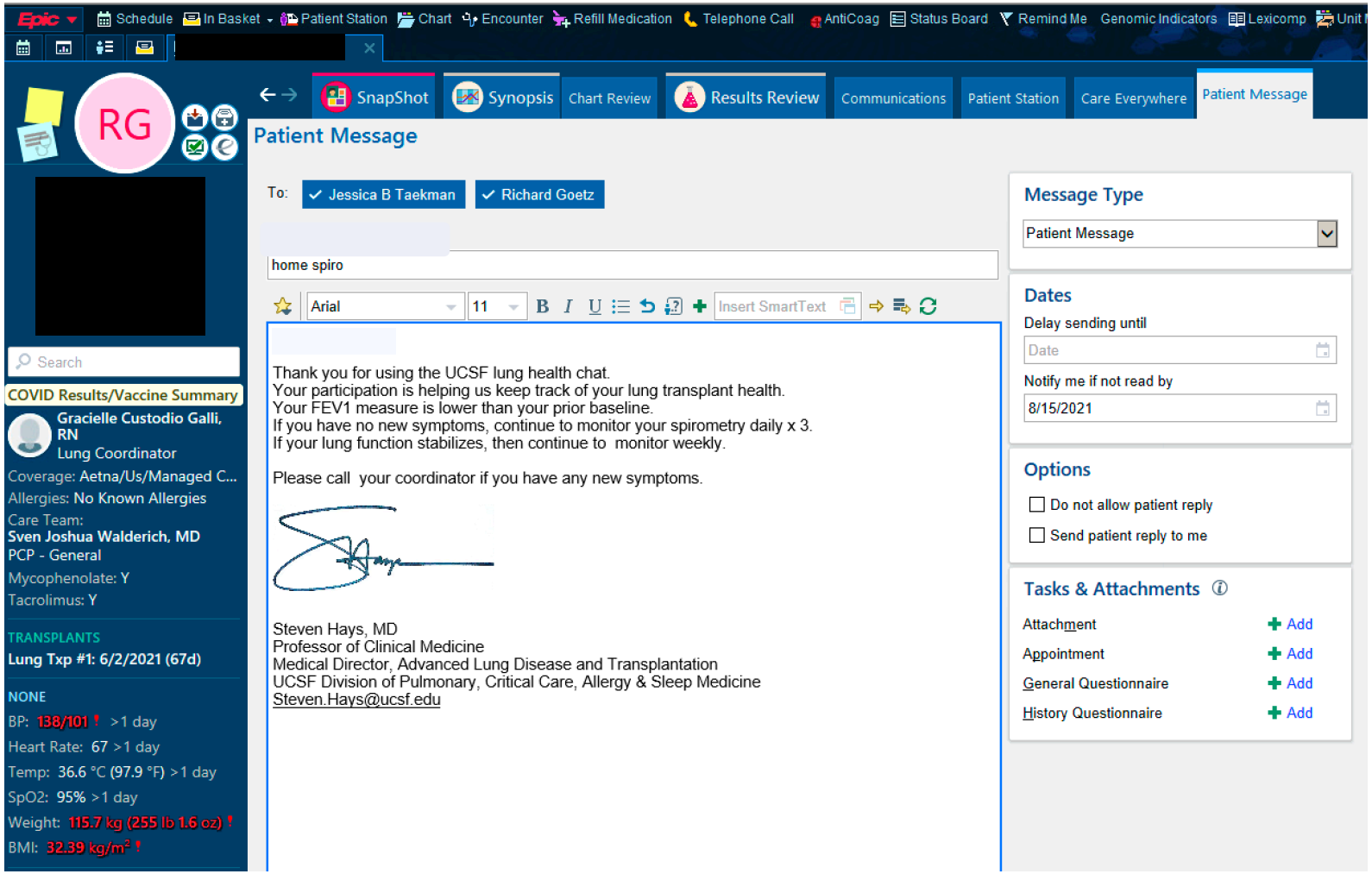
Patient Feedback



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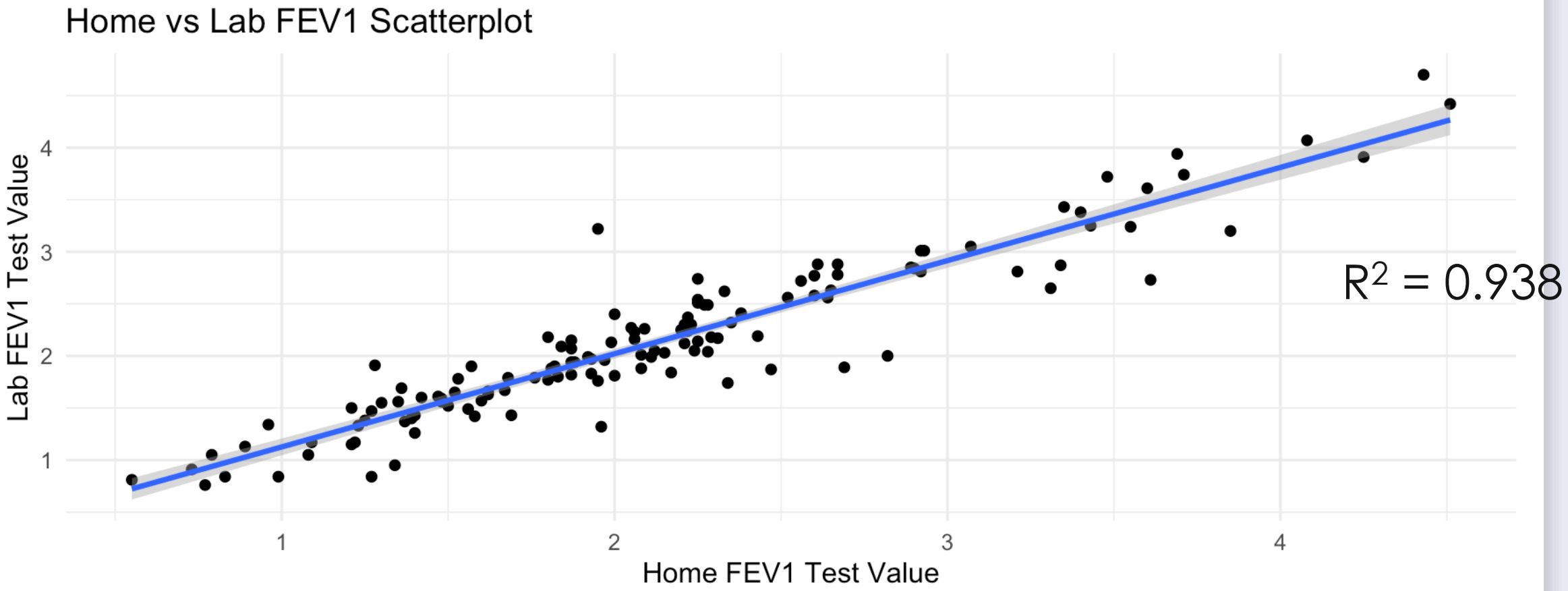
Home spirometry highly correlates with Lab spirometry



Hays SR, JHLT. 2023 Jun;42(6):828-837

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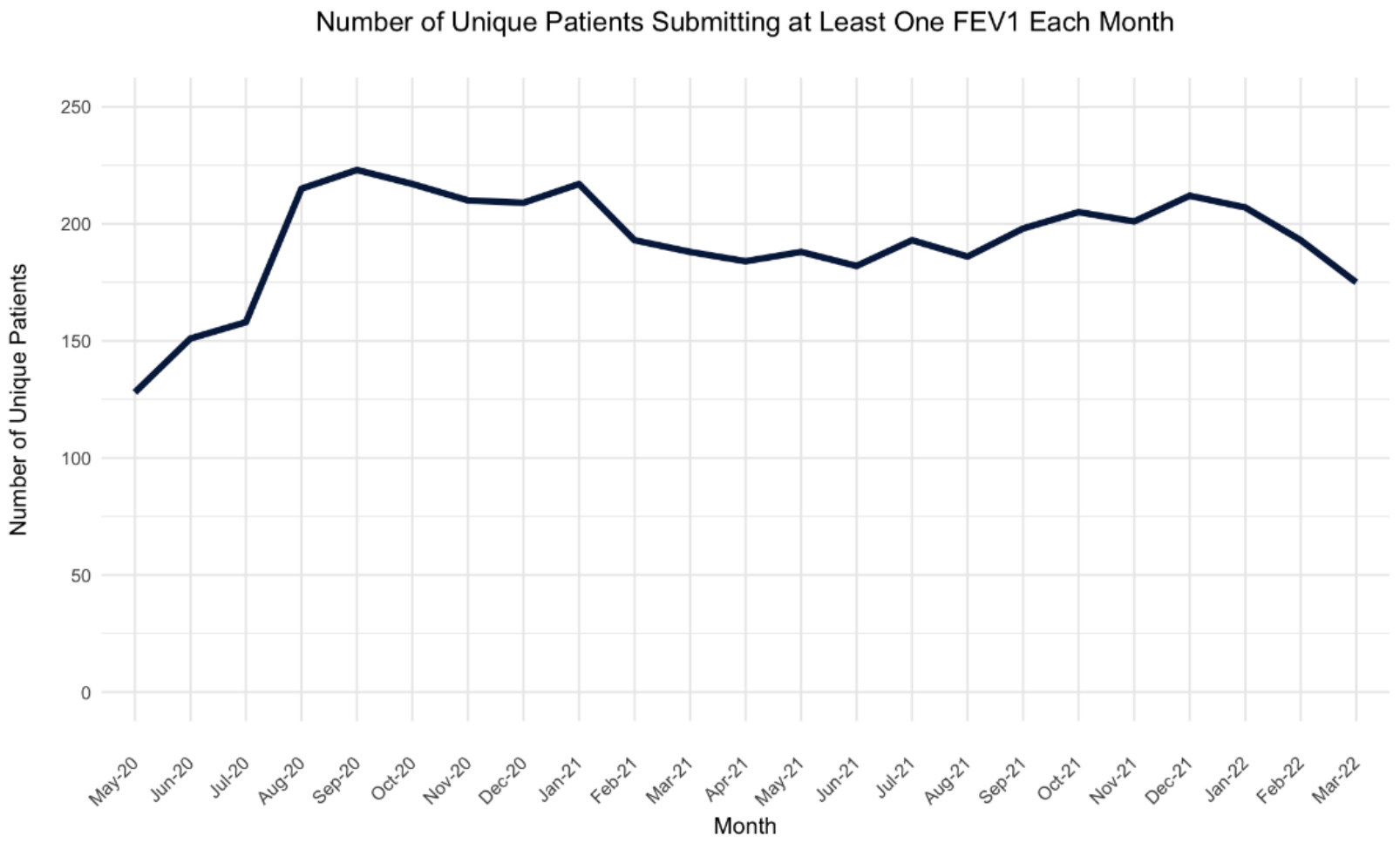
Unique Patient FEV1 Submissions per Month



Hays SR, JHLT. 2023 Jun;42(6):828-837

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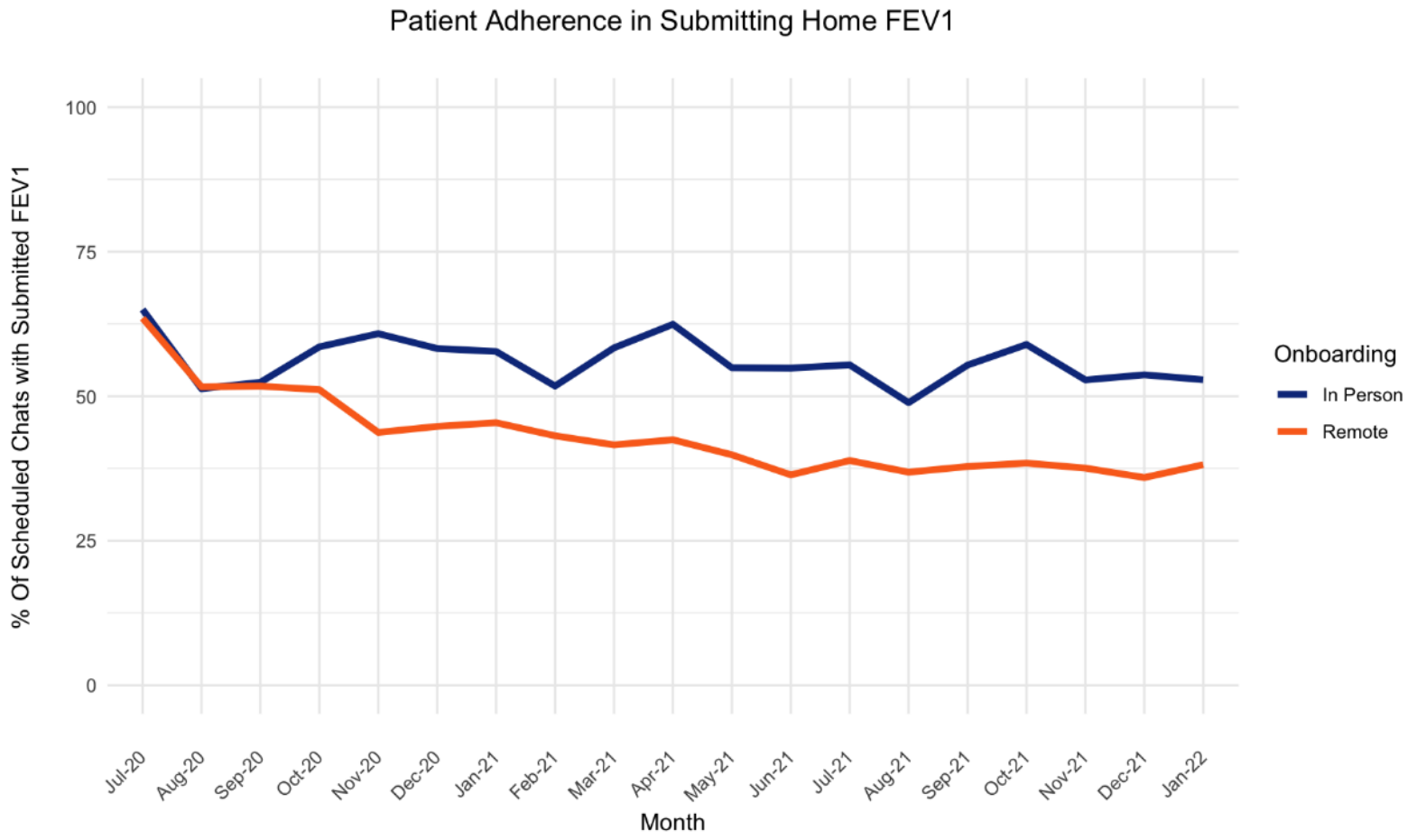
Adherence to home spirometry



Hays SR, JHLT. 2023 Jun;42(6):828-837

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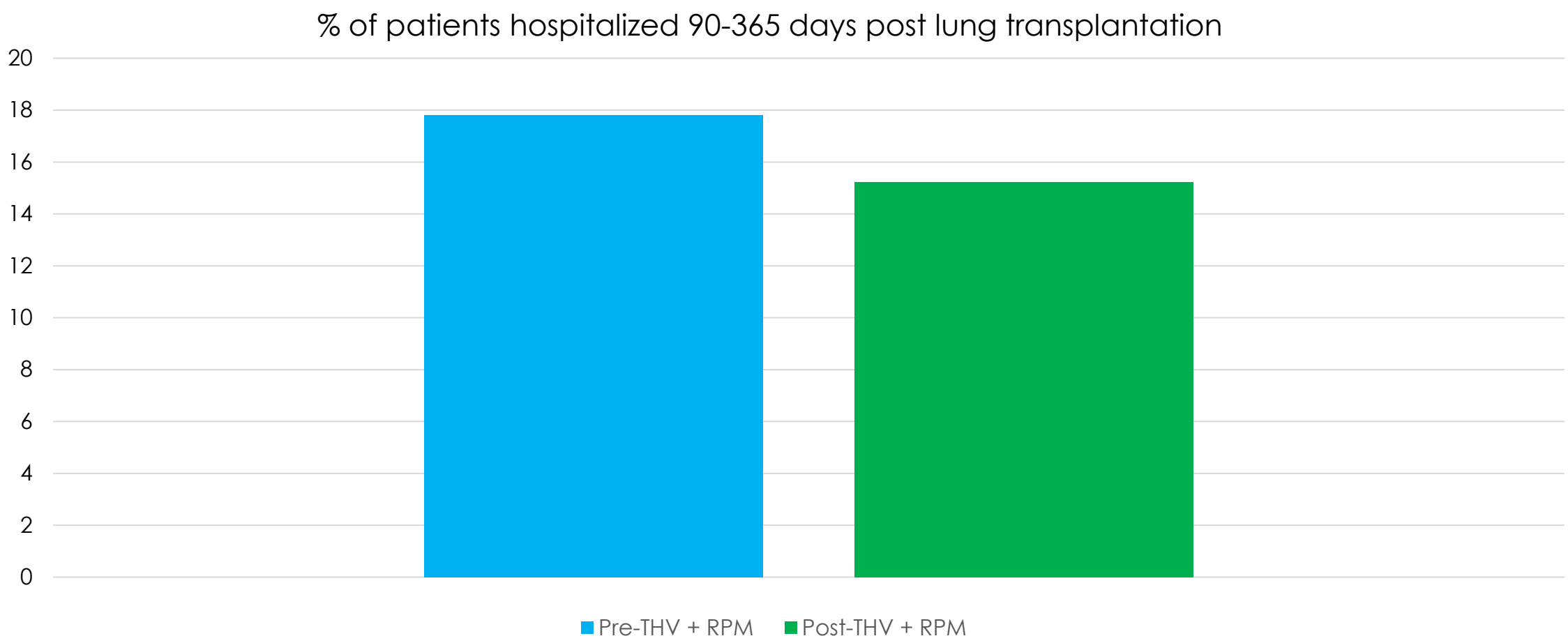
Replacing in-person clinic and spirometry with THV and home spirometry and hospitalization rate in year 1



ELSEVIER

The Journal of Heart and Lung Transplantation
http://www.jhltonline.org

Design and implementation of a digital health home spirometry intervention for remote monitoring of lung transplant function

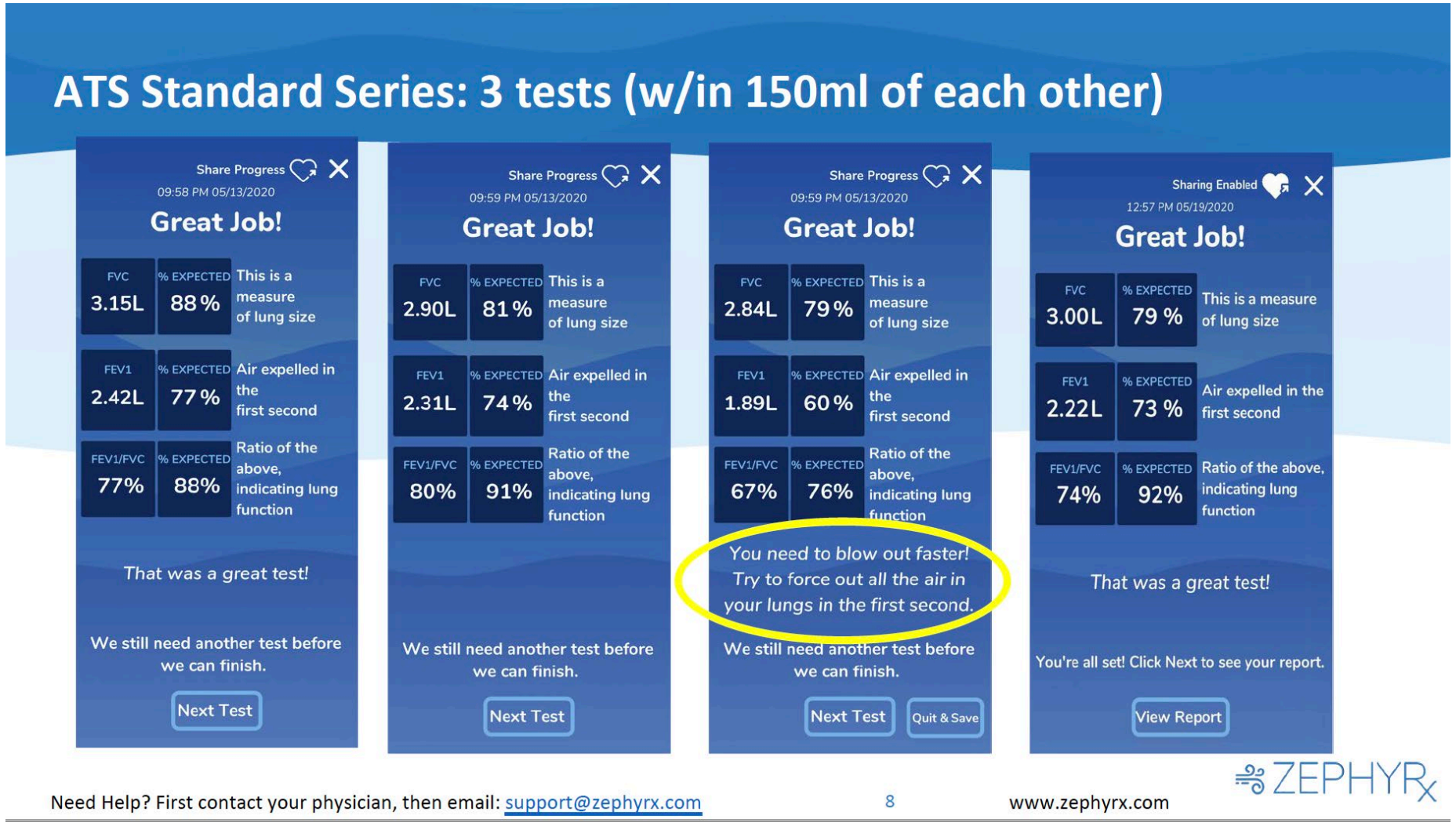
Anobel Y. Odisho, MD, MPH,[a,b] Andrew W. Liu, BA,[a] Ali R. Maiorano, BA,[a] M. Olivia A. Bigazzi, MS,[a] Eli Medina, MBA,[a] Lorriana E. Leard, MD,[c] Rupal Shah, MD,[c] Aida Venado, MD,[c] Alyssa Perez, MD,[c] Jeffrey Golden, MD,[c] Mary Ellen Kleinhenz, MD,[c] Nicholas A. Kolaitis, MD,[c] Julia Maheshwari, MD,[c] Binh N. Trinh, MD, PhD,[d] Jasleen Kukreja, MD, MPH,[d] John Greenland, MD, PhD,[c] Daniel Calabrese, MD,[c] Aaron B. Neinstein, MD,[a,e] Jonathan P. Singer, MD, MS,[c] and Steven R. Hays, MD[c]

From the [a]Center for Digital Health Innovation, University of California, San Francisco, California; [b]Department of Urology, University of California, San Francisco, California; [c]Pulmonary, Critical Care, Allergy and Sleep Medicine Division, Department of Medicine, University of California, San Francisco, California; [d]Department of Surgery, University of California, San Francisco, California; and the [e]Endocrinology Division, Department of Medicine, University of California, San Francisco, California.

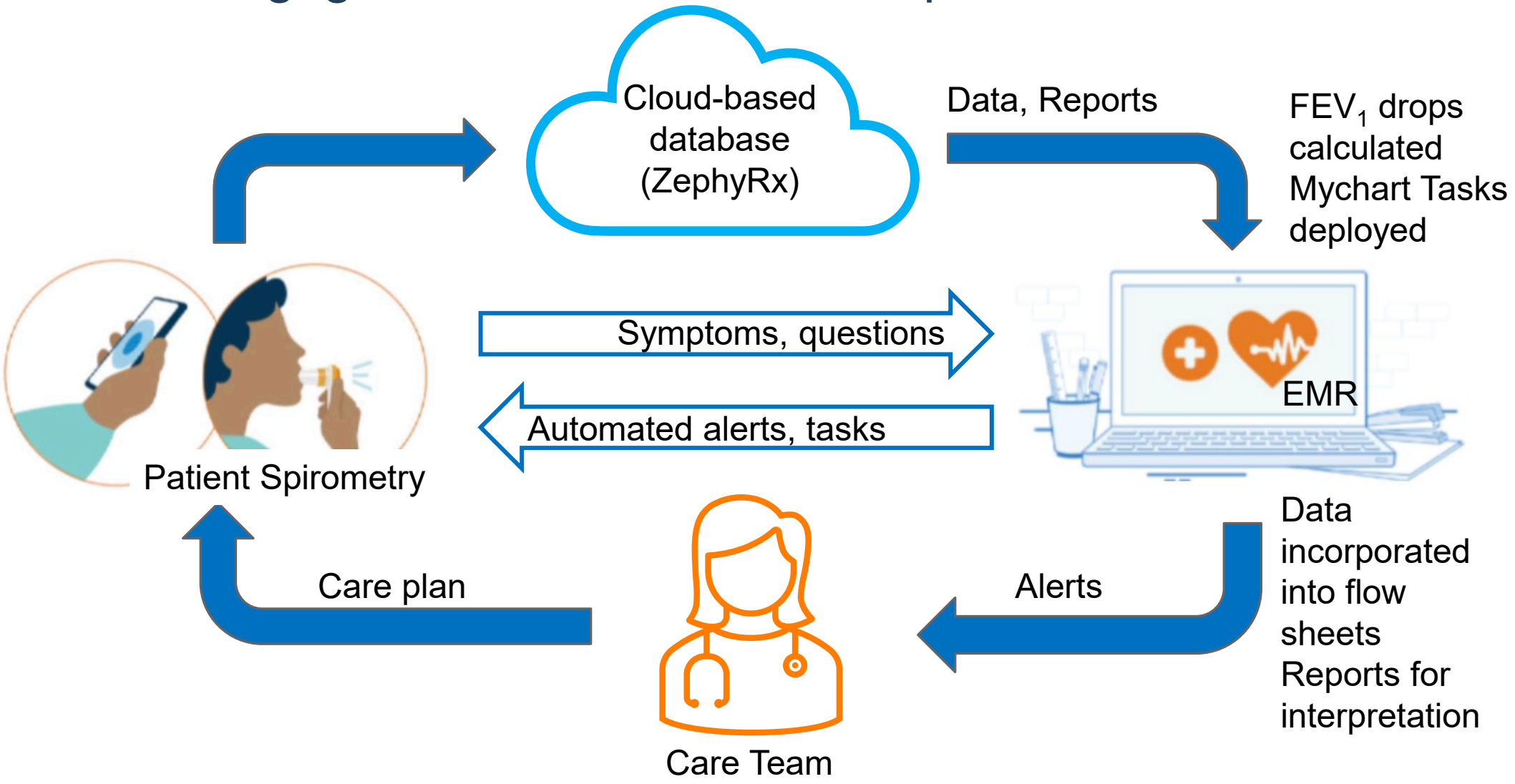
Challenges

- Multiple platforms made the system complex
- Patients did not love the chatbot – repetitive, slow
- Data not seamlessly integrated into EMR
- Data not as high quality – limited quality control, hand-entered data could not live in EMR

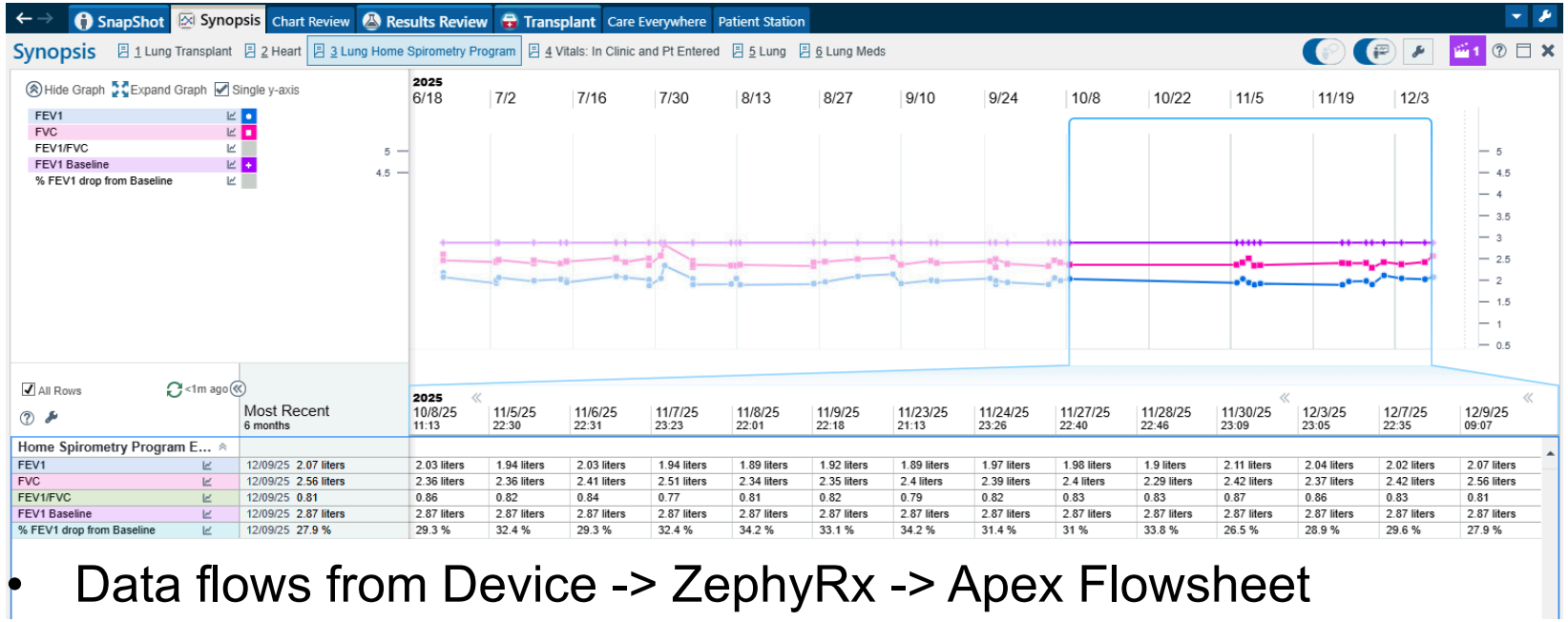
Implementing ZEPHYRx app



Engage, Collect, Feedback, Disposition, Track



Integrated Flowsheets



- Data flows from Device -> ZephyRx -> Apex Flowsheet
- Algorithms built into CareCompanion give feedback and instructions
- Care Companion sends home spirometry reminders prior to appointments and for missing data
- Monthly reports are automatically downloaded to Epic with flow volume loops, data and trend lines

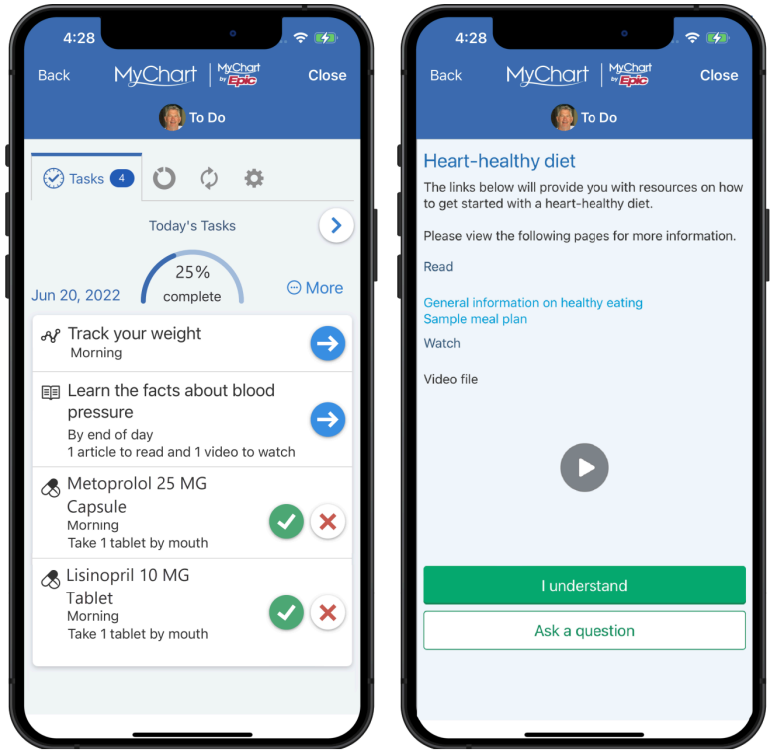
Apex Care Companion

Reminder: Take Your Home Spirometry Before Your Appointment

Your post-lung transplant appointment is coming up. If you haven't taken a reading yet this week, please remember to take a home spirometry reading before your visit so your clinic team has the most accurate information for your upcoming appointment. If you are using the Breathe Easy app by Zephryx, then your readings will automatically be shared with your care team.

Need a refresher on how to take a reading? Watch this short video for tips

Done Skip



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Care Companion Feedback

FEV1 Decrease Follow-Up

3:47 PM

Thank you for taking your FEV1 measurements. Your latest FEV1 measurement has dropped by more than 10%. Your care team is monitoring your results. Please report any new respiratory symptoms to your nurse and continue monitoring your lung function from home.

Complete Skip

You're on a roll! Thank you for staying on top of your spirometer readings

3:47 PM

Keeping track regularly is a great way to stay on top of your lung health. Keep it up!

Complete Skip

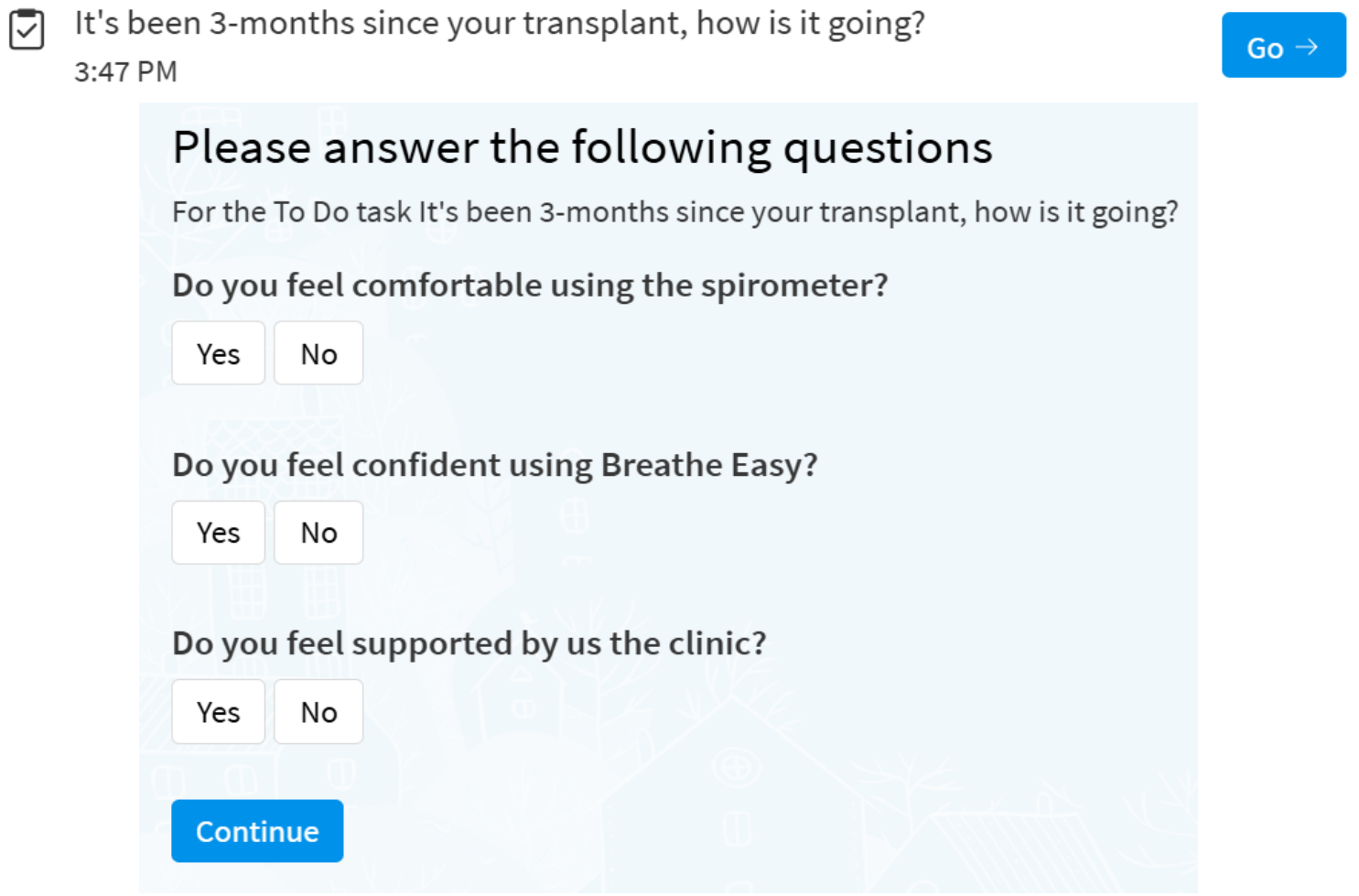
Let's get back on track!

3:47 PM

We use your regular home spirometry readings to monitor your lung function. Now is a great time to take a reading and keep the momentum going! If you have any questions or concerns, don't hesitate to reach out to your nurse. We're here to help!

Go →

Care Companion Feedback



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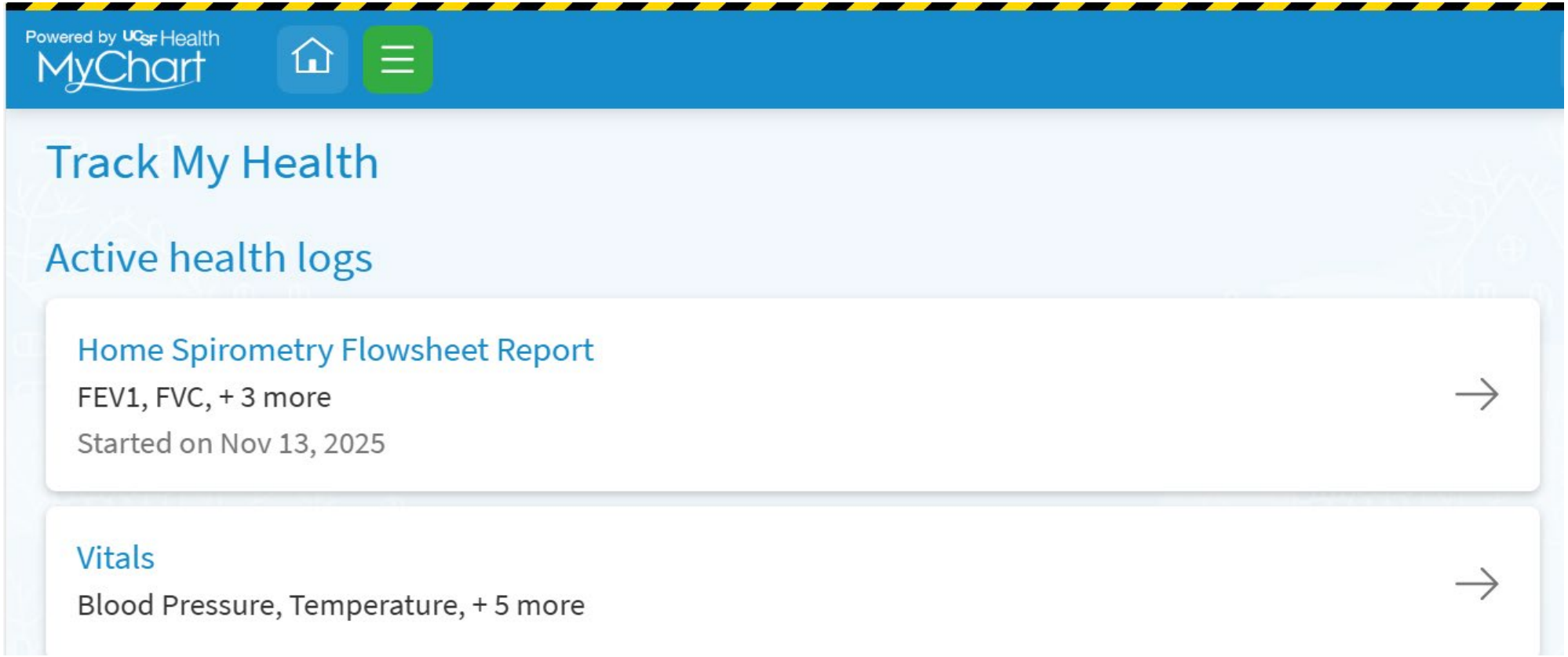
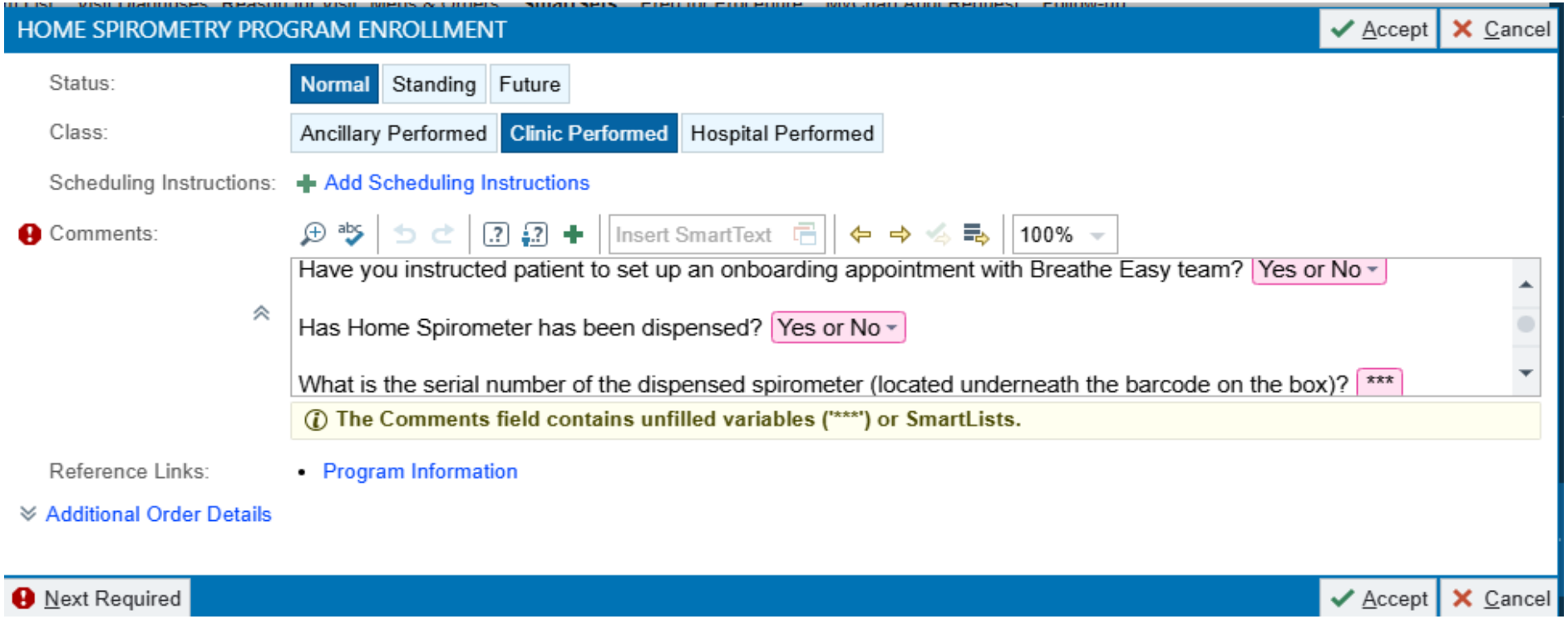
MyChart Patient Visualization



Epic Order for Home Spirometry



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Epic smart phrase

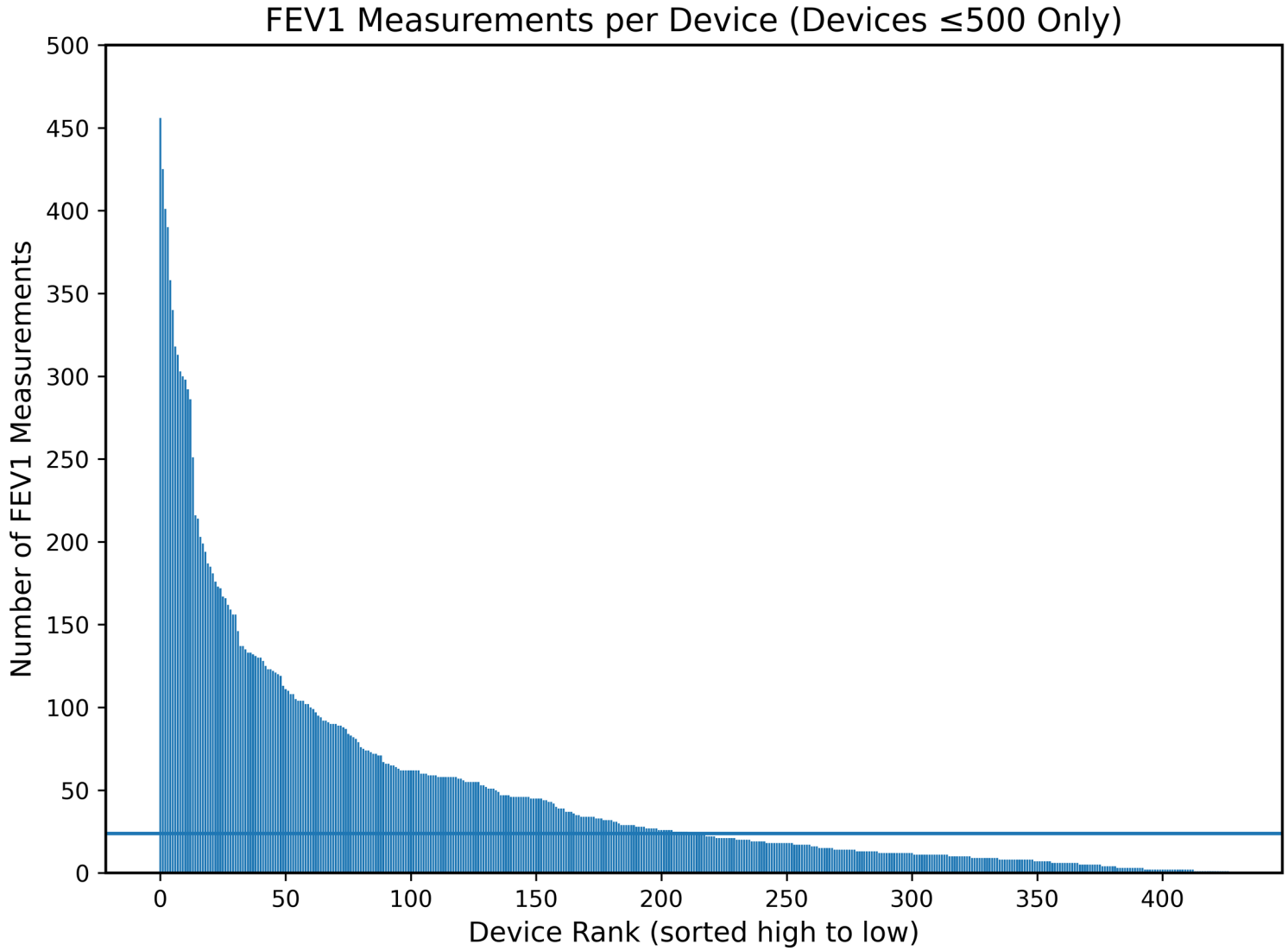
	2/2/2026	1/26/2026	1/24/2026	1/23/2026
HOME SPIROMETRY				
FEV1	1.7 liters	1.42 liters	1.52 liters 1.32 liters	1.41 liters
FVC	2.29 liters	2.09 liters	2.26 liters 1.9 liters	2.06 liters
FEV1/FVC	0.74	0.68	0.67 0.69	0.68
FEV1 Baseline	1.81 liters	1.81 liters	1.81 liters 1.81 liters	1.81 liters

Multiple values from one day are sorted in reverse-chronological order

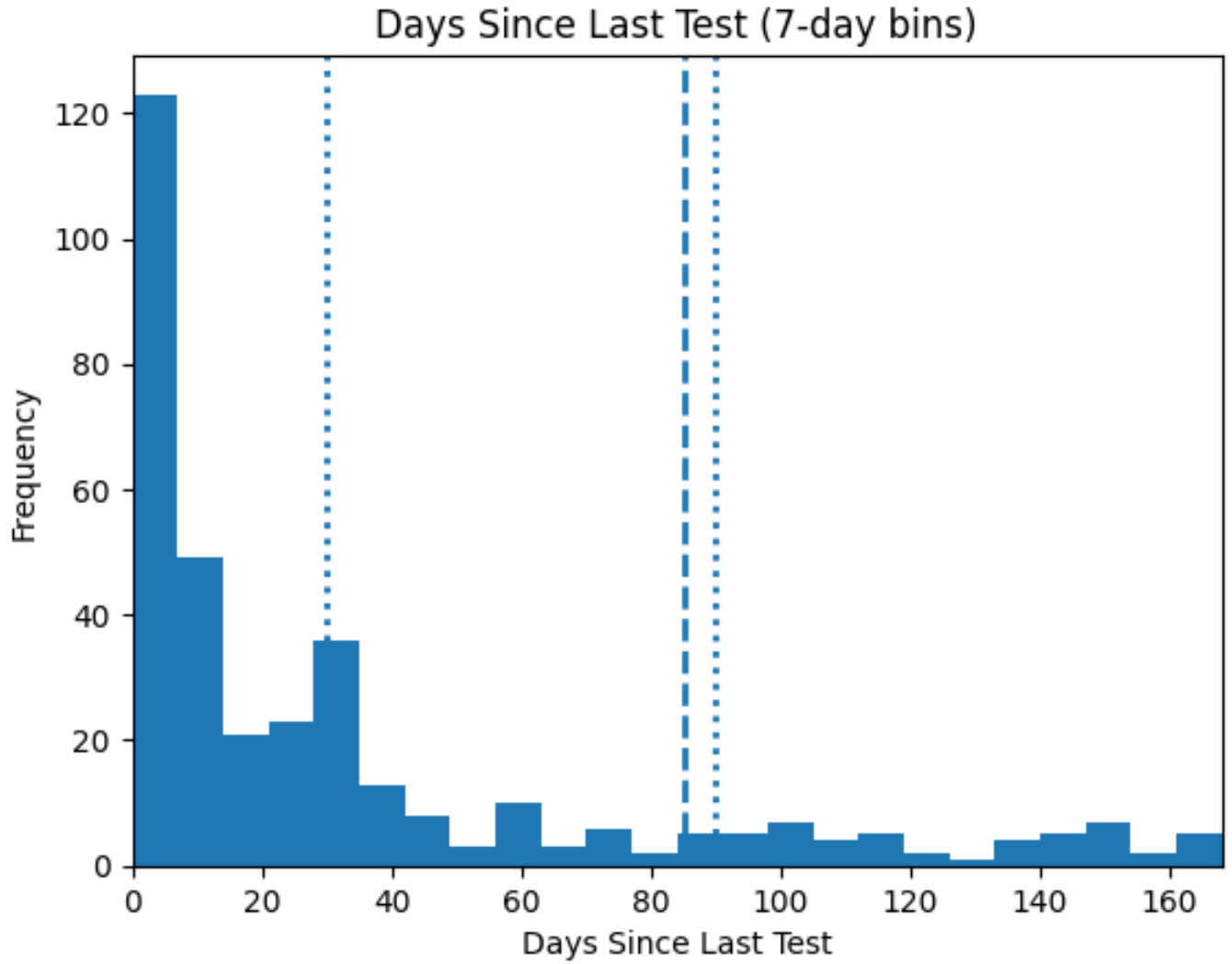
.homes

Name	Description
☆ HOMESPIROMETRY	HOMESPIROMETRY

Home Spirometry Use Across the Population



Home Spirometry Frequency of Use



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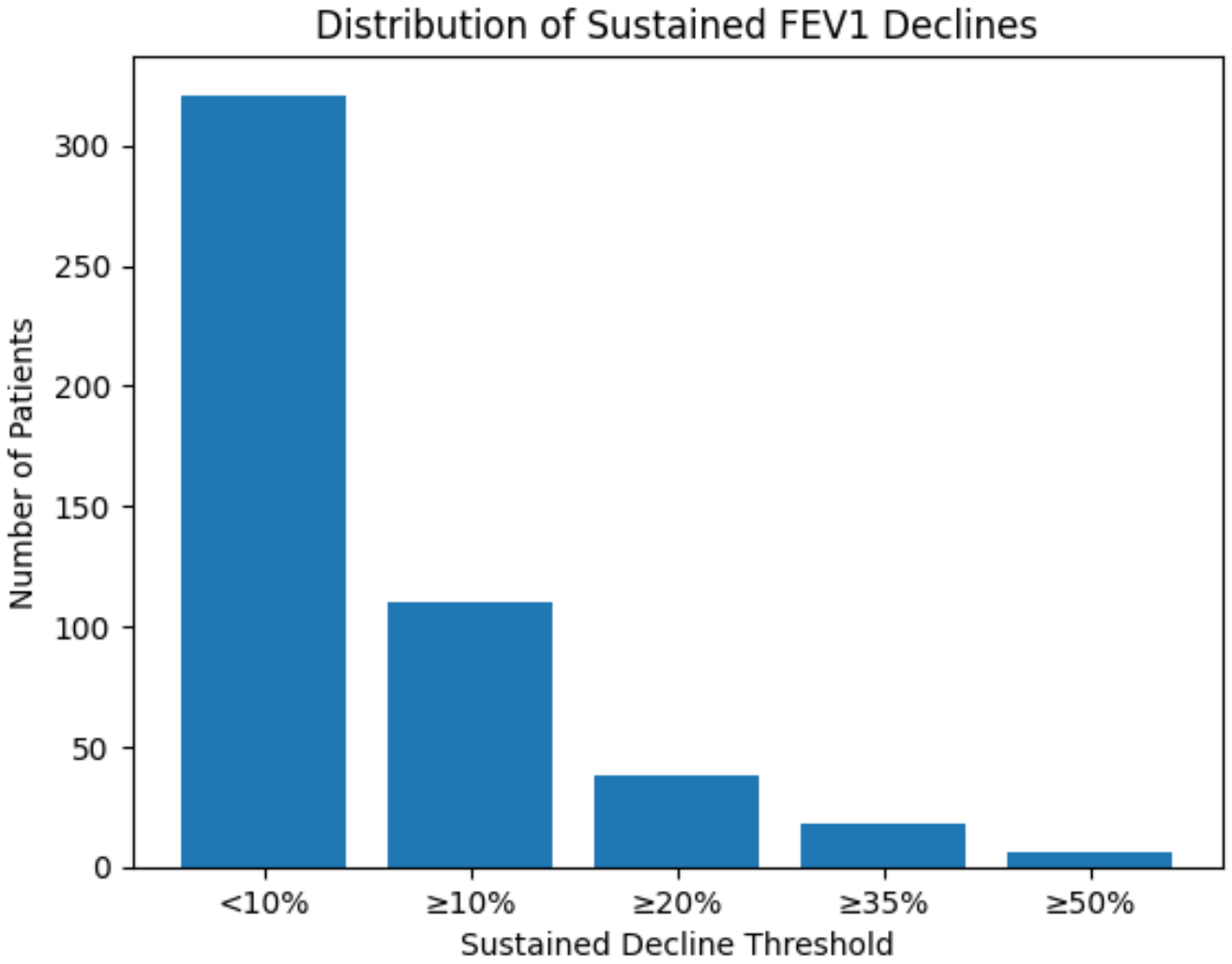
Can home spirometry identify BOS? Is BOS identified sooner?



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Spirometry Reports

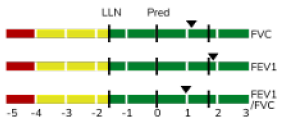
Pulmonary Function Test Report

Period Date Range: 12/22/2025 - 01/20/2026

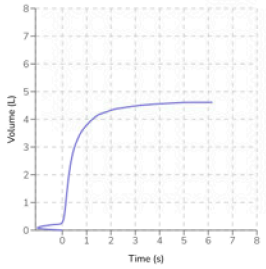
Device MIR Spirobank Smart spirometer

Patient	James M Abercrombie		**Referred By**	UCSF Lung Transplant	
Spirometer ID	SM-005-Z030246		**Provider**	ZEPHYRx API	
MRN	49642636		**Date of Best Test**	01/07/2026, 6:37 am	
Birth	11/14/1954	**Weight**	220.00lbs, 99.79kg	**BMI**	33.45
Ethnicity	Caucasian	**Height**	68.00in, 172.72 cm	**Sex at Birth**	Male
Remote Visit	No	**Given By**		**Call Duration**	

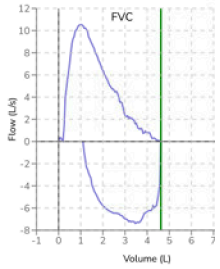
Best Test: 01/07/2026, 6:37 am		LLN	Z Score	Pred. (L)	%Pred.
FVC (L)	4.62	2.90	1.11	3.92	118%
FEV1 (L)	3.84	2.14	1.83	2.98	129%
FEV1/FVC	0.83	0.63	0.93	0.76	109%
FET (s)	5.36				
PEF (L/s)	12.06	5.61	3.21	7.80	155%
PIF (L/s)	7.38				
FEF-2575 (L/s)	4.11	0.98	1.63	2.28	180%
FEV6 (L)	4.62				
FIVC (L)	3.65				
BEV (L)	0.28				



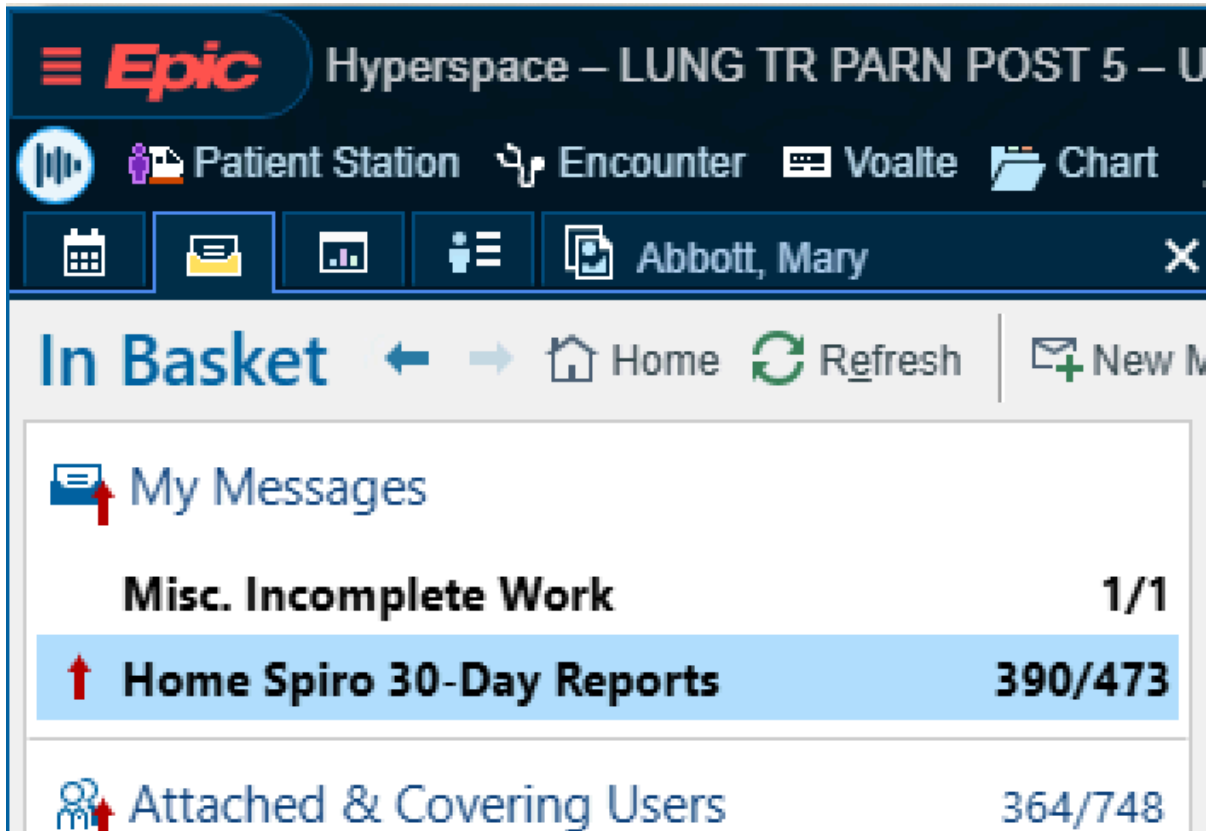
Volume Time Curve



Flow Volume Curve



Test Quality: FEV1 Grade: F; FVC Grade: F; Acceptable: Not acceptable or usable; FVC Repeatable: No; FEV1 Rep Variability: FEV1: 0.02L (0.52%); FVC: 0.04L (0.87%);



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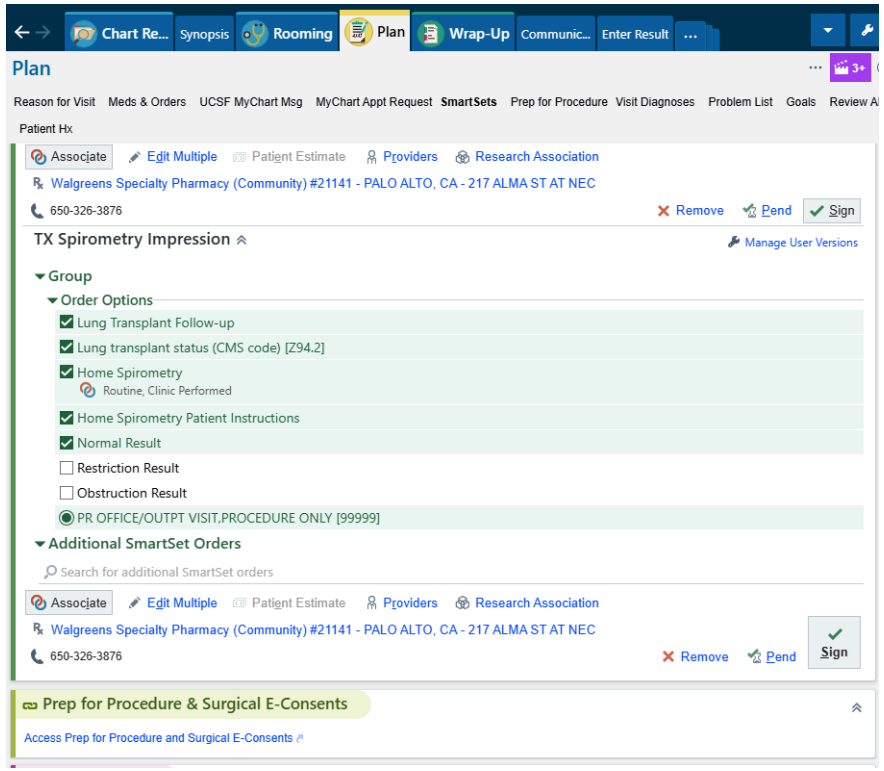
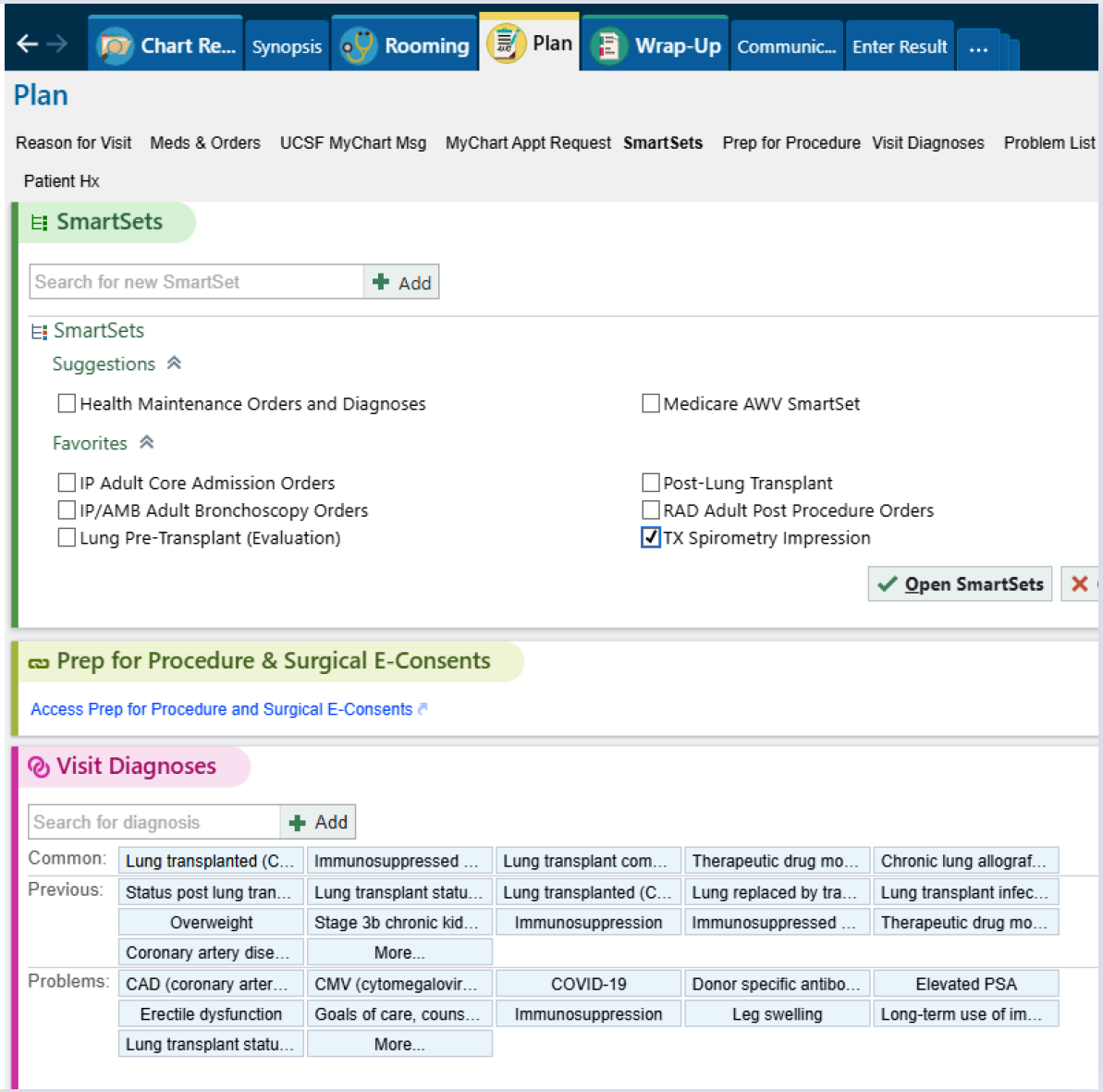
Home spirometry smart set





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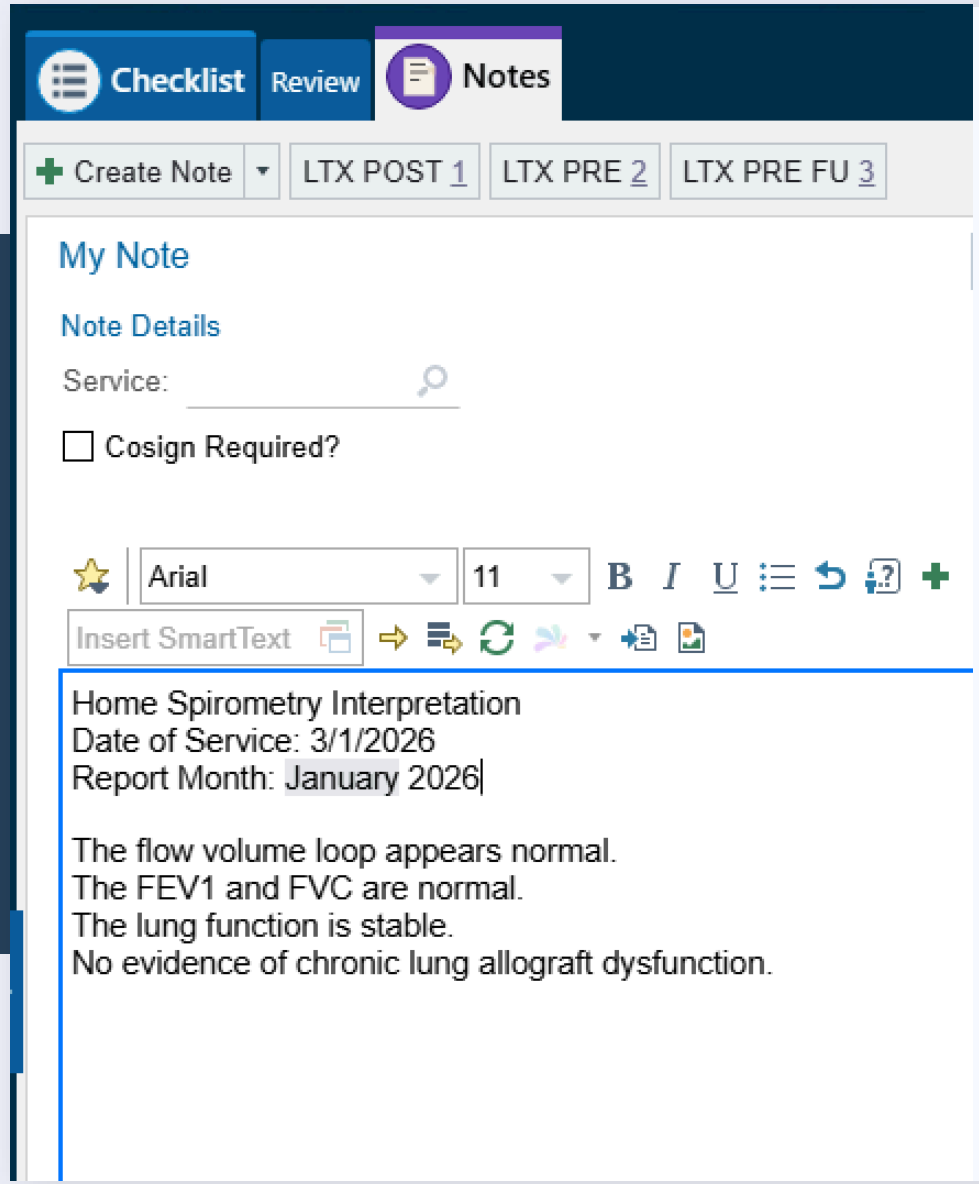
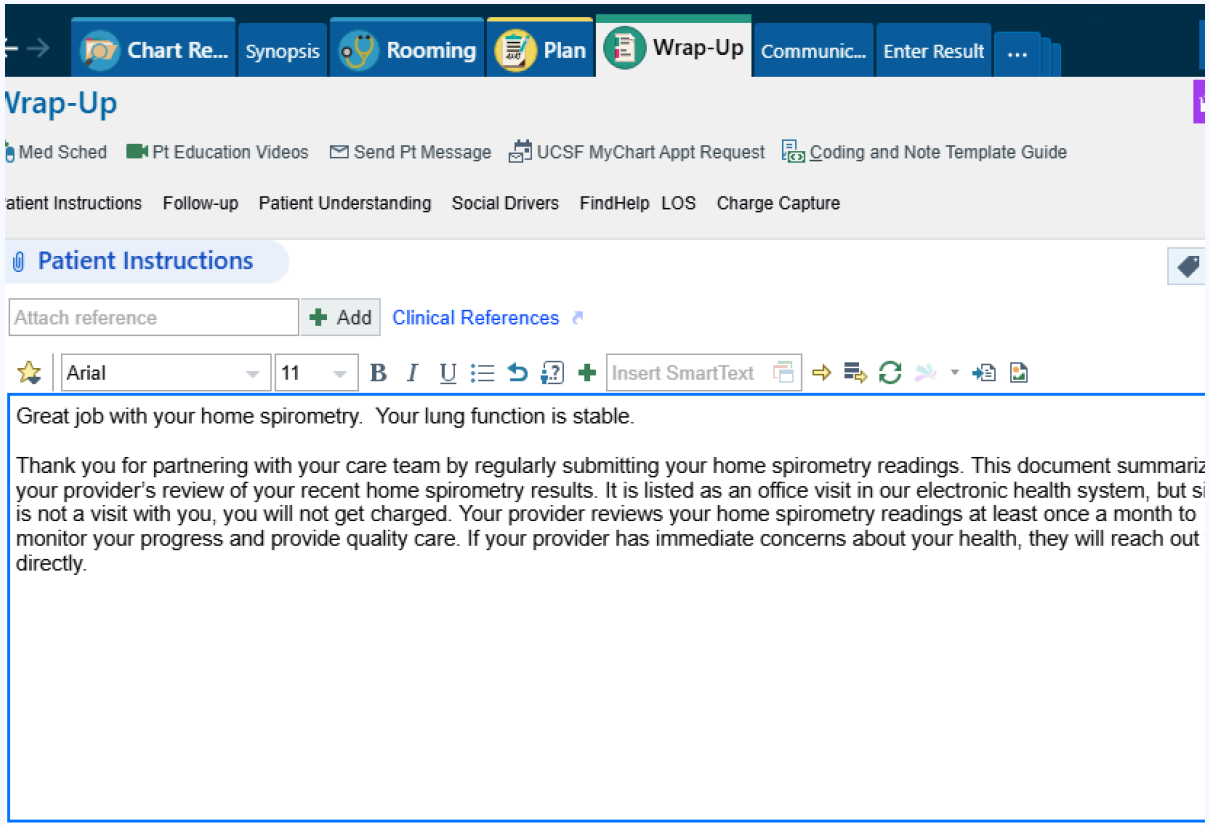
Home spirometry interpretation





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Patient Feedback

I think the purpose is to monitor our lung function from a distance and for the doctors to be able to get more frequent measurements of our FEV1 without having us come in to do spirometry, or even go into our local hospital. It's kind of a way to keep tabs on us from home in a way that's safe for us and easier for them.

I think it's pretty great. I found it really helpful. And it's been nice for me to have like a reason to do my FEV1 and have a record of that. I like having more of a stand-up baseline that has more frequent measurements because I've always in clinic other than when I've been sick, it's been really stable, but it's nice to know at home like, oh yeah, this is really kind of where [my condition] lives.

Participant 5

What's Next…

- Seamless onboarding
- Data integration into the EMR
- Alerting / Task system
- Dashboard
- Reporting / Billing

- Does home spirometry lead to better long short and term outcomes?
- How do we improve adherence?
- Can physiologic measurement be combined with other home measurements (biomarkers) to move to quality remote care

Transplant Care in the Future

Follow up clinic at intervals based on personalized needs

Home lab testing at intervals based on personalized needs

Surveillance testing? Biomarkers, at home physiologic monitoring

Personalized Immunosuppression AI/Pharmacogenomics

Personalized Prophylaxis? AI/Genomics

For cause testing based on home testing / home monitoring


Questions?