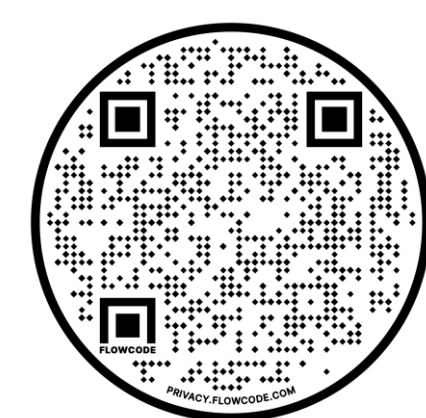


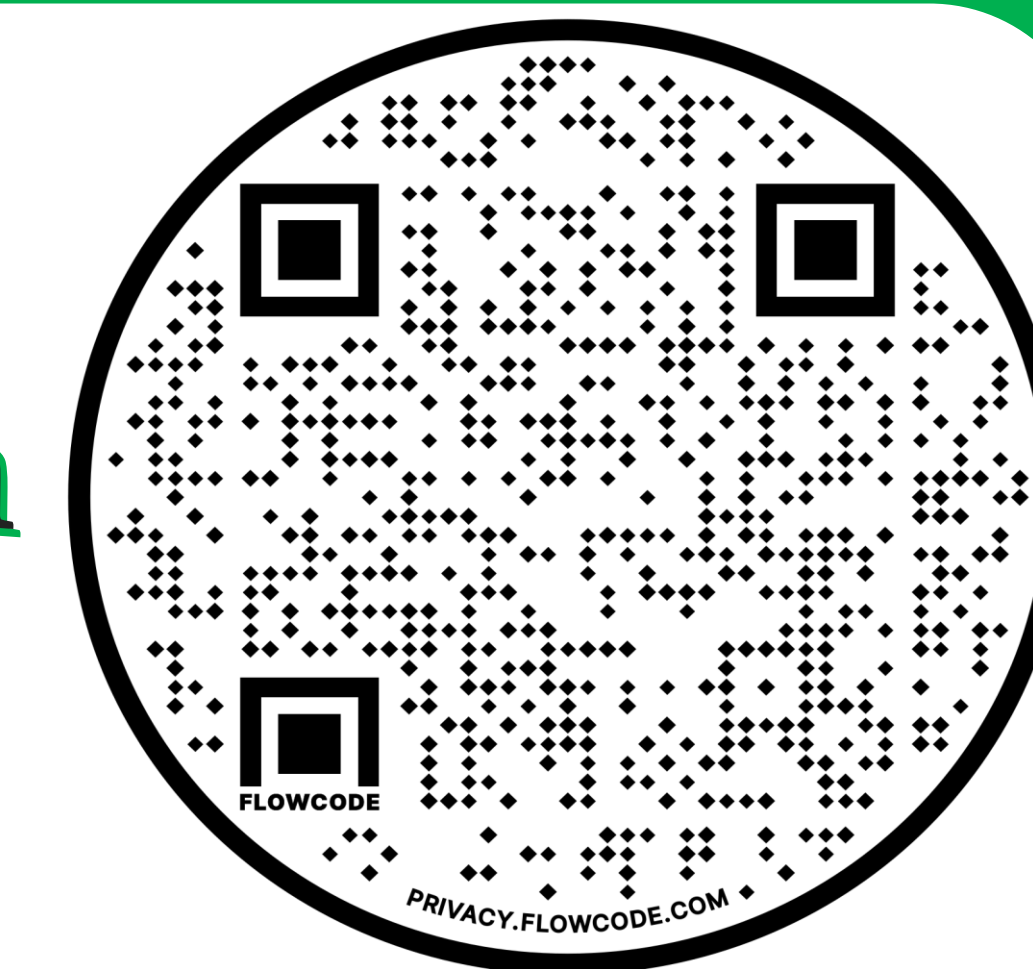
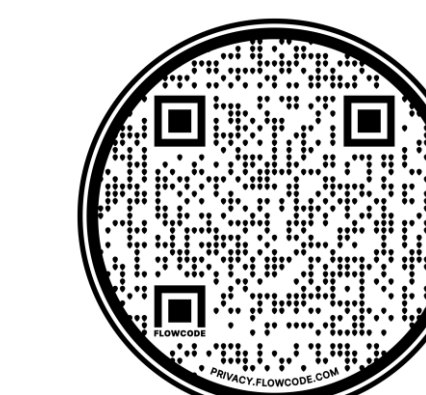
Improved Diagnostic Sensitivity of Peak Flow Monitoring in Concomitant Occupational Asthma and Vocal Cord Dysfunction



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Introduction

Occupational Asthma (OA) = [asthma dx] + [work exposures]

Diagnostic Challenges:

- False-negatives (FN) w/o exp.
- Challenge testing
- Bronchodilator (BD) response
- Concomitant VCD
- Both LMW & HMW exposures

Case Presentation



Demographics: 63-yo M

Occupational History:

- 13-yr rental truck mechanic
- 13-yr employment hx

Job Tasks:

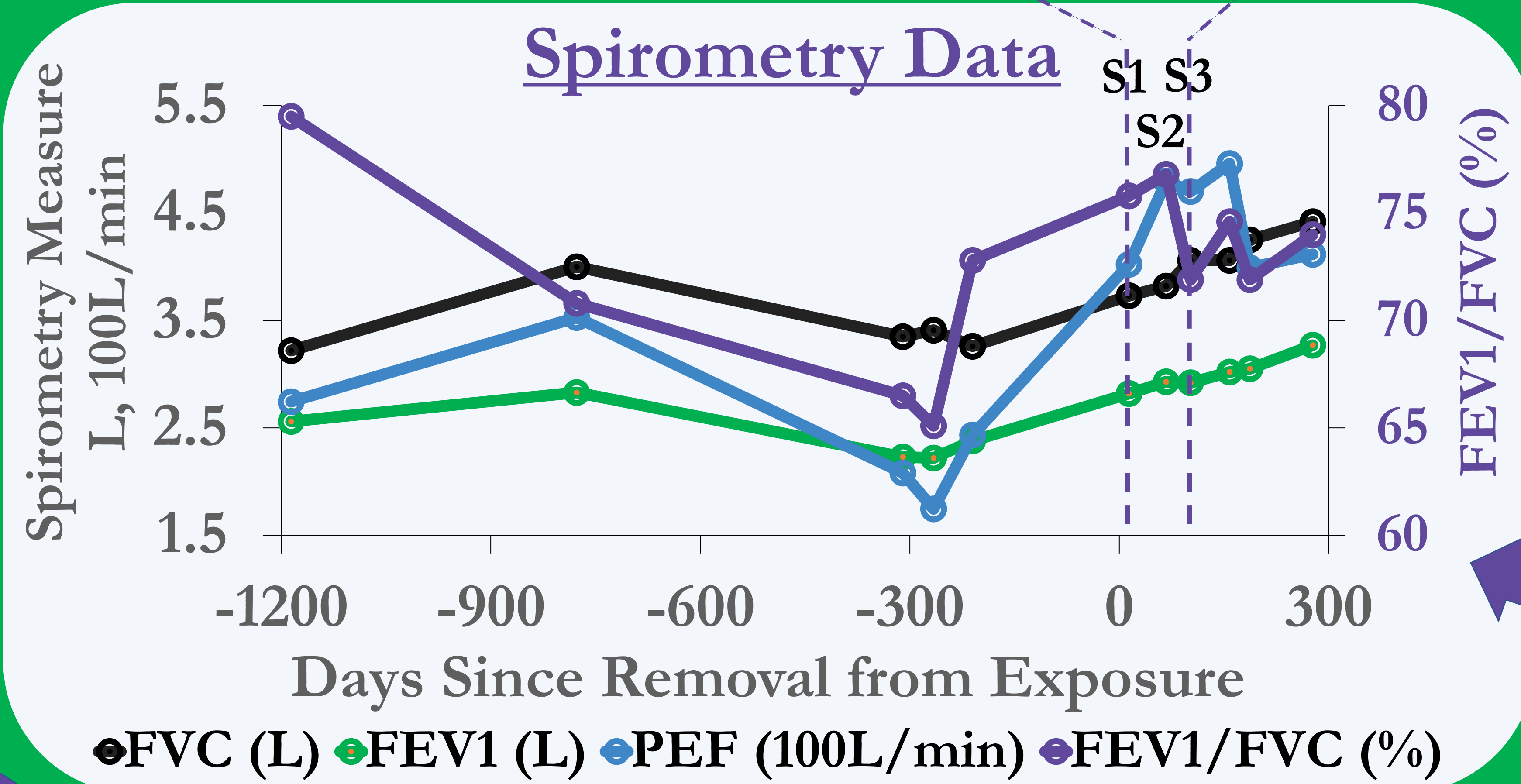
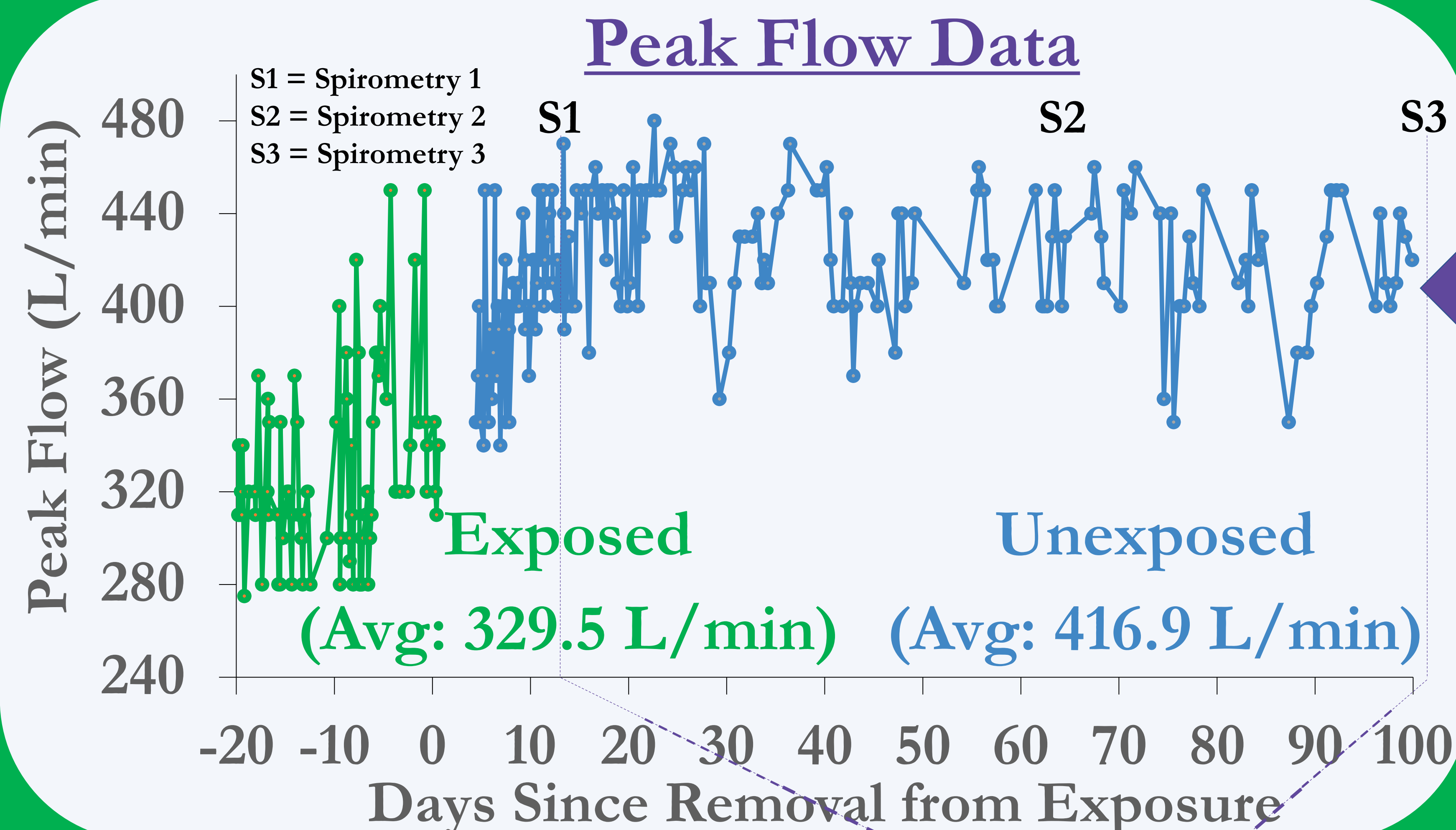
- Repairing truck bodies
- Sanding wood and fiberglass
- Aerosol painting
- Cleaning/restoring parts

Medical History:

- 40-py smoking hx
- Worsening DOE for 2 yrs
- COPD diagnosis

Exposure symptoms:

- Dyspnea, rhinorrhea, cough, skin irritation



Workplace Exposures

Compound	Freq. of Exposure
Adhesive remover	Continuous
Paint stripper	2x/wk, > 1x/day
Brake cleaner	Continuous
Foam cleaner	Continuous
Plywood dust	3-4x/wk
Exhaust (diesel > unleaded)	Frequent, variable

Evaluation and Diagnostics

Pulmonology: Sx > findings

Allergy: + total IgE, - IgE common allergens

OEM: Symptom diary with peak flow

Symptom timing:

- Worse during work, improved outside work
- Sx worse with work exposures
- Sx improved with ↑ ventilation

Symptom Response:

- + bronchodilators
- + speech therapy



Before Exposure Removal:

- Spirometry pre/post BD: +10.3% FEV1
- Chest CT 3mm nodule, septal thickening
- Chest CT mild emphysema, bronchiectasis

After Exposure Removal:

- Avg. peak flow **+22.4%**
- Spirometry FEV1 +18.4% immediately
- Spirometry FEV1 +37.4% long-term
- - Methacholine challenge (+3 mo)
- Chest CT resolution of nodule, thickening

Conclusion

- OA +/- VCD underrecognized
- +/- FN diagnostics after exp. removal
- Peak flow: non-invasive, cost-effective

References

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3. Jolly AT. Work-Related Asthma. *J Occup Environ Med.* 2015 Oct;57(10):e121-9.