# Outcomes with High-Frequency Chest Wall Oscillation among Patients with COPD using a Large Claims Database

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## INTRODUCTION

High-Frequency Chest Wall Oscillation (HFCWO) is increasingly used for airway clearance therapy in patients with comorbid bronchiectasis and chronic obstructive pulmonary disease (COPD). Several recent studies[1,2] have evaluated the impact of HFCWO on healthcare utilization, but the need exists for larger studies that encompass patients who have COPD without evidence of bronchiectasis.

### Objective

To determine if HFCWO therapy in patients with COPD with bronchiectasis is associated with decreases in healthcare use.

### Questions Asked

- Is there a reduction in all-cause hospitalizations after initiation of HFCWO therapy in COPD patients?
- Is there a reduction in respiratory-related hospitalizations after initiation of HFCWO therapy in COPD patients?

This study was sponsored by RespirTech, a Philips company. Gary Hansen and Pritesh Pandya are employed by RespirTech. Charlene McEvoy serves on the Clinical Advisory Board of RespirTech. Derek Weycker works as a consultant to RespirTech.

## METHODS

A retrospective pre/post-cohort design and data from the Optum healthcare claims repository were employed. The study population included all patients having at least one medical claim with Healthcare Common Procedure Coding System (HCPCS) code E0483 for the use of air-powered HFCWO devices on or between January 1, 2008 and April 30, 2018. Of these, the cohort was limited to those with >= 12 months pre- and >=12 months post-index continuous medical insurance eligibility from the first usage of HFCWO therapy; no major comorbidities indicating end of life; patients with a COPD diagnosis and no record of bronchiectasis (COPD-only); and patients >= age 18. Statistical comparisons were made using a paired-samples t-test of the 12-month pre and 12-month post periods, examining both respiratory-related and all-cause hospitalizations as well as ambulatory visits.

## RESULTS

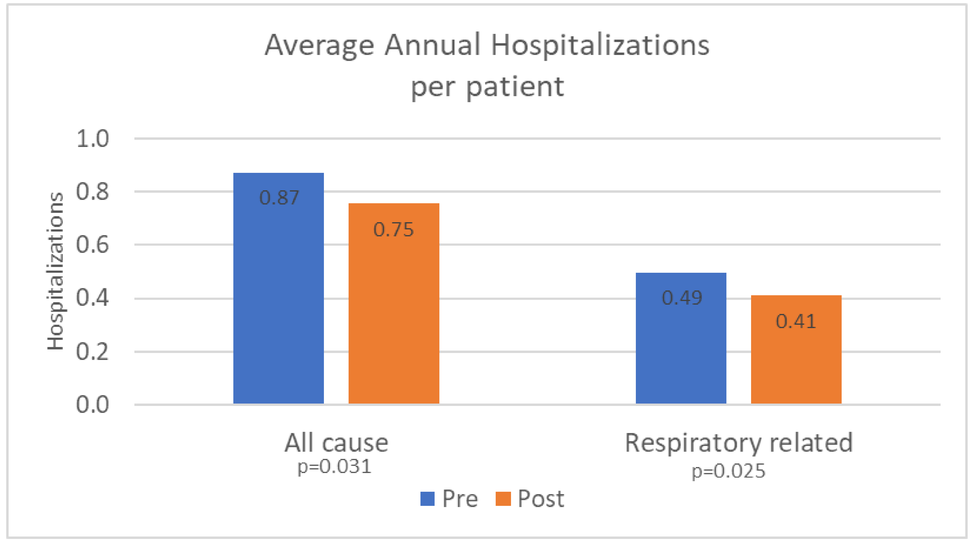
The study population included 1172 patients with COPD-only who had initiated HFCWO therapy during the study period. Of these, 62% were female; age distribution was 4% age <40, 14% age 40-59, 61% age 60-79, 21% age 80 and over; and the mean Charlson Comorbidity Index was 2.78 + 1.9. Comparing pre and post periods, mean respiratory-related and all-cause hospitalizations were lowered by 17.1% (0.495 vs. 0.410, p=0.025) and 13.6% (0.87 vs. 0.75, p=0.031) respectively. Mean respiratory-related ambulatory visits increased by 2.3% (18.28 vs. 18.7, p=0.458) while all-cause ambulatory visits increased by 9.7% (49.37 vs. 54.18, p=<0.0001).

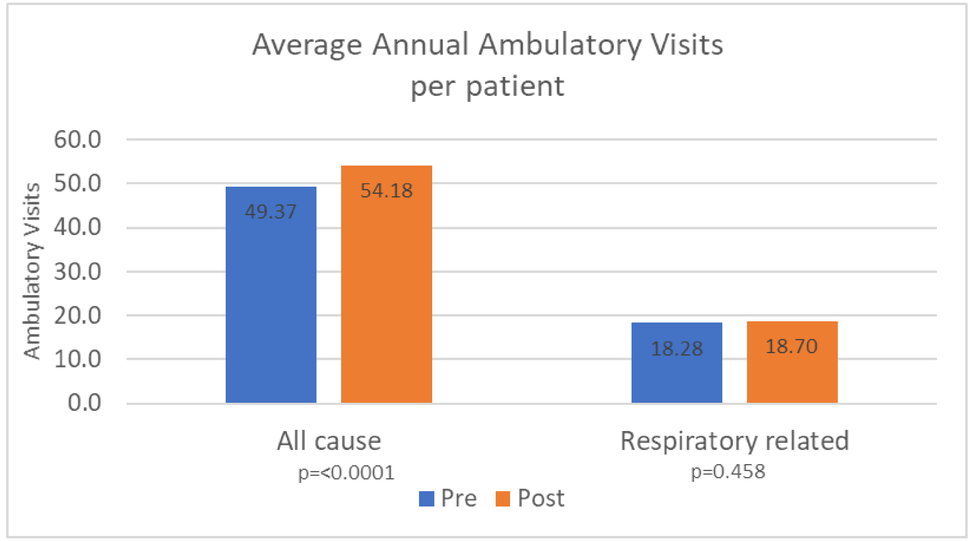
## DISCUSSION

This study shows that HFCWO users can be identified in a large commercial database of cleared claims, allowing the analysis of healthcare utilization trends associated this therapy. The year following initiation of HFCWO saw a reduction in both all-cause and respiratory hospitalizations, with a modest but statistically significant increase in all-cause ambulatory visits. It is theorized that improved airway clearance, by reducing the rate of severe exacerbations, helps to move patients away from acute care to more convenient ambulatory settings.

## CONCLUSION

For patients with COPD in the absence of bronchiectasis, health care utilization moves from acute to ambulatory settings in the 12 months following initiation of HFCWO therapy. Such real-world data in this patient population provides additional insight into the value provided by vest therapy in this chronic condition.

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2. Weycker D, Hansen GL, Seifer FD. Outcomes with High-Frequency Chest Wall Oscillation Among Patients with Non-CF Bronchiectasis or COPD. American Thoracic Society Conference, May 21. 2017:P1122.