OLYMPUS

Spiration® Emphysema HCP Training

Frequently Asked Questions

This document is intended to provide consistent answers to frequently asked questions regarding SeleCT, EMPROVE and REACH.

EMPROVE Clinical Trial

Were any patients in the EMPROVE trial discharged with a pneumothorax?

Yes. Of those patients, some may have been discharged with a chest tube (with or without a Heimlich valve) in-place awaiting resolution.

How many pneumothorax events were in the contralateral lobe?

5/33 cases (15%).

What was the average duration of chest tube time?

Not all patients with pneumothorax had a chest tube inserted and chest tube duration time was not recorded.

What was the average duration of hospitalization post PTX?

The mean duration (onset to resolution) for non-serious PTX events was 4.4 days (range 1 – 8 days). Serious PTX events (ones that required intervention/chest tube) generally took longer to resolve: mean duration 13.8 days (range 2 —37 days).

Were any valves removed for pneumothorax management?

Yes, one or more valves were removed in 11/16 (69%) patients with a serious pneumothorax and 2/13 (15%) of subjects with a non-serious pneumothorax. 2/28 (8%) patients needed to have all their valves removed to manage PTX (serious or non-serious).

How many pneumothoraces led to respiratory failure and/or pneumonia?

A total of 7 PTX events in 6 pts (5.3%) led to or were associated with pneumonia or respiratory failure:

- Non-serious (Moderate) PTX led to Respiratory failure
- Serious PTX. Pneumonia occurred 7 days later
- Non-serious (Severe) PTX associated with pneumonia
- Non-serious (Moderate) associated with respiratory failure
- Serious PTX associated with respiratory failure
- Non-serious (Moderate) led to pneumonia 7 days later
- Serious PTX associated with pneumonia

What are the efficacy endpoint data by pneumothorax, serious pneumothorax, and no pneumothorax? Was this statistically significant?

Delta Baseline – 3 Months	FEV_1 (ml)	mMRC (points)	CAT (points)	SGRQ (points)
Serious PTX (N=14)	129 ±222	-0.62 ±1.26	-4.3 ±7.5	-10.3 ±15.2
No PTX (N=99)	124 ±164	-0.49 ±0.96	-3.0 ±7.0	-8.2 ±17.8
P- value between groups	0.643	0.921	0.893	0.802

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EMPROVE Clinical Trial (Continued)

Is there a different pneumothorax rate in treated subjects who received 9mm valves?
There doesn't appear to be a difference in PTX rate with 9mm valves.

UPPER LOBES	9mm valves only	9 + mix of valves	No 9mm valves
Serious PTX	4/22	9/35	6/22
Non-serious PTX	3/22	2/35	1/22
LOWER LOBES	**9mm valves only**	**9 + mix of valves**	**No 9mm valves**
Serious PTX	1/10	0/20	0/4
Non-serious PTX	1/10	6/20	0/4
ALL LOBES	**9mm valves only**	**9 + mix of valves**	**No 9mm valves**
Serious PTX	5/32	9/55	6/26
Non-serious PTX	4/32	8/55	1/26

Were there any instances where patients experienced a "trapped lung" as opposed to a pneumothorax?
We are not aware of any EMPROVE subjects who experienced a "trapped lung." Trapped lung is an instance where the lung does not fully expand during pleural drainage. When pneumothorax occurs after placement of an endobronchial valve, it is thought to be from the re-expansion of the ipsilateral lobe (the opposite of a trapped lung).

What value do you use as a cutoff for determining if a patient has pulmonary hypertension?
The EMPROVE trial determined pulmonary hypertension as having a pulmonary artery pressure greater than 45mmHg, as determined by echocardiogram. If echocardiogram was questionable, a right heart cath was used to make the final determination.

How often were patients in EMPROVE followed up?
Subjects were seen at the following intervals: 1 months, 3 months, 6 months, 12 months. Annual follow-up in the treatment arm will occur up to 5 years (treatment arm) and 2 years (control arm).

What is the average improvement in the COPD Assessment Test (CAT)[1] score in EMPROVE?
Relative difference at 6 months was 4.5 and 5.3 at 12 months. MCID for the CAT is a 2-point improvement.

How many patients were on oxygen?
Supplemental oxygen use was similar between the two study groups with 45.1% of the treatment group and 45.8% of the control group using oxygen. Average at-rest oxygen flow rates were also equivalent (1.2 liters/min for both study groups).

How many patients were on low dose steroids?
81.4% of the treatment group and 84.7% of the control group.

How many patients received prophylactic antibiotics and steroids?
98% of SVS treatment patients received peri-procedural antibiotics. 57.5% of SVS treatment patients received peri-procedural steroids.

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EMPROVE Clinical Trial (Continued)

Was tissue hyperplasia and/or granulation seen in any of the EMPROVE subjects?
Some granulation was seen during re-bronchs of 11 subjects. The data provided in the training presentation is from our initial pilot experience. In our first 10 patients, there was a required re-bronch at one month.

Why were patients with a giant bulla excluded from EMPROVE?
Patients with giant bullae represent a different emphysema phenotype and the benefits may be different than that of the emphysema patient we are targeting for treatment.

Why didn't EMPROVE have a lower limit for FEV_1 and an upper limit for BMI? Should the physician consider having an upper/lower limit when selecting patients?
Patients with a very low FEV_1 and high BMI may benefit, however they are complex. It was determined that screening patients for inclusion in the study using medical inclusion/exclusion criteria was more appropriate.

What was the percentage of patients treated in EMPROVE and LIBERATE who met the MCID for SGRQ and mMRC?

Measure	MCID	EMPROVE	LIBERATE
SGRQ	4.0 points	50.5%	56.2%
mMRC	1.0 point	48.9%	47.8%

What is the outcome data on patients with 95-100% fissure vs. those with 90-94% fissure? Was there a difference?
The number of patients with fissure integrity < 95 is small, but there does appear to be a trend for patients with FI ≥ 95% to have better improvements.

Delta Baseline – 6 Months	FEV_1 (ml)	TLV (L)	RV (L)	mMRC (points)	SGRQ (points)
Fissure Integrity ≥95% (N=87)	112 ±159	-1.02 ±0.75	-0.49 ±0.85	-0.66 ±1.04	-9.5 ±16.7
Fissure Integrity 90-94% (N=19)	38 ±115	-0.74 ±0.60	-0.002 ±0.75	-0.58 ±1.02	-1.9 ±18.0
P- value between groups	0.0576	0.1607	0.0224	0.7601	0.0853

What was the median hospital stay for treated patients in EMPROVE?
The median hospital stay was one day.

Is there a statistically different rate in re-bronchs with patients who were treated in the lower lobe?
3/34 (8.8%) subjects with targeted lower lobes required rebronchs for valve adjustment, compared to 8/79 (10.1%) with targeted upper lobes. No significant difference.

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EMPROVE Clinical Trial (Continued)

Is there a mortality benefit? PulmonX claims that there is a mortality benefit with their valves. Does the SVS have the same mortality benefit?

The EMPROVE trial was not powered to assess for a mortality benefit. Both EMPROVE and the SVS post-approval study will assess mortality over a 5-year and 3-year follow-up, respectively, which may be sufficient to power an analysis of mortality benefit against historical controls.

PulmonX makes this claim based on a retrospective analysis of data collected by the Thoraxklinik in Heidelberg, Germany.[2] The dataset for this analysis included both SVS and PulmonX Zephyr valves, so this is not strictly a PulmonX-only claim. As such, it is a bit disingenuous to claim a benefit of improved mortality based on a single, retrospective study, let alone a benefit tied to a specific valve, but the data is an encouraging signal that BLVR may be associated with improved mortality, independent of valve used.

What were the changes in PO_2 and PCO_2 over time?

There were no statistically significant differences between the control and treatment groups in the mean change at 3 or 6 months.

PO_2	Treatment	Control
Baseline	67.89	67.95
Delta at 3 months	-2.34*	0.38
Delta at 6 months	-1.80*	0.72

PCO_2	Treatment	Control
Baseline	40.16	40.94
Delta at 3 months	-0.81	-0.60
Delta at 6 months	-0.59	0.75

* $P<0.05$, compared to baseline

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SeleCT: Patient Selection Analysis Service

Who is responsible for paying for the SeleCT report fee?
Olympus has made the decision to provide access to SeleCT at no additional charge, in order to assist in patient selection for bronchoscopic lung volume reduction (BLVR) treatment with SVS and help ensure best possible patient outcomes.

Will there be an offering for SeleCT reports to be done at the 45-day timeframe?
At this time, SeleCT reports are only offered for patient selection/work-up.

What software system is used?
Olympus has it's own proprietary software that has been cleared by the FDA for quantitative characterization of eligibility criteria. Before the results are provided, they are reviewed by a trained specialist.

What is the process for uploading a scan?
Reference SeleCT CT Acquistion Protocol.

Will contrast automatically disqualify a scan for SeleCT?
Reference SeleCT CT Acquistion Protocol.

Is there a value to give to the radiologist for “smooth kernel” reconstruction?
Reference SeleCT CT Acquistion Protocol.

How do I ensure that the scan has been deidentified?
CT scan deidentification depends on the selected service type. Reference the respective SeleCT Quick Reference Guide.

What happens if my SeleCT scan is rejected?
Reference SeleCT Quick Reference Guide.

When a scan is rejected it can be re-uploaded for no additional cost. How often can that be done? Is there a limit per physician or institution?
There is no limit per physician or institution to reupload scans.

Who will define “diffuse homogenous emphysema” on the patient's CT?
The radiologist at the institution where the CT scan was performed will read the CT and submit a report. This report generally also includes a characterization of the emphysema pattern.

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REACH Clinical Trial

Why is the pneumothorax rate so low? Does the lack of the 9mm valve have anything to do with it?

From the REACH[3] publication:

The markedly lower pneumothorax rate in our study may be attributable to a very conservative post-operative care regimen, with patients staying in-hospital for a median of 6 days post-intervention and exposed to limited activities of daily living, which has been previously shown to reduce pneumothorax incidence.

In this study, the average emphysema severity in the ipsilateral lobe was 34.6%, with an emphysema heterogeneity between lobes of 28.4% (see Table 2). In contrast, the ipsilateral lobe emphysema severity in the TRANSFORM and LIBERATE studies was 45.4% and 47.5%, respectively, and this may account for the comparatively lower pneumothorax rate seen in the REACH study. Gompelmann, et al[2]., have also noted that with greater emphysematous destruction of the untreated ipsilateral lobe there is an increased incidence of pneumothorax.

EMPROVE Clinical Trial: Alpha-1 Antitrypsin Study Arm

Are the Alpha-1 patient SAE's captured in the total EMPROVE SAE's or are they captured separately? If separately what are they (specifically exacerbations and pneumothorax rate)?

The Alpha-1 patients were part of an independent treatment arm, so the SAEs associated with their treatment were reported separately from the EMPROVE main treatment arm. A total of 20 Alpha-1 subjects were treated in EMPROVE. 3/20 (15%) subjects had a serious pneumothorax and 4/20 (20%) had a non-serious pneumothorax. COPD exacerbation rate for the Alpha-1 study arm was 15% (3/20).

Did any of the Alpha-1 patients move on to transplant?

2/20 did. One subject during the 0-6 month phase had double lung transplant; one subject during the 6-12 month phase had a double lung transplant.

Were the Alpha-1 patients Heterozygous or Homozygous?

We did not define this in the protocol, so it was left up to the physician's discretion. We did not document how many of the Alpha-1 patients were heterozygous vs. homozygous.

Procedure Overview

What data exists on doing a staged procedure for multiple lobes?

The EMPROVE and REACH trials did not include protocols for staged procedures. Therefore, the data does not address whether this may be efficacious.

Is the membrane flammable? Can I use a laser to remove the valves if necessary?

The valve membrane has not been tested for flammability and the use of a laser on or near the valve has not been studied.

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Procedure Overview (Continued)

What are the criteria that should be used when selecting a primary and secondary target lobe?

EMPROVE used emphysema destruction as the number one factor when determining which lobe to treat. In the event of a tie the perfusion scan was used as a tie breaker.

Dr. Criner at Temple recently presented his order of importance when selecting a target lobe. That list, in order of priority is:

- Fissure integrity (Collateral ventilation)
- Emphysema destruction
- Perfusion
- Volume
- Degree of heterogeneity
- Anatomy

Does the SVS require a 3-night stay post procedure?

In its approval of the SVS, FDA did not mandate a 3-night stay, as they did for the PulmonX Zephyr Valve.

- REACTIVE ONLY: During the EMPROVE study an overnight stay was required. If the investigator had a high suspicion of potential pneumothorax, they were allowed to keep the patient longer, per their medical discretion. The mean hospital stay in EMPROVE was 3.81 days, with a median of one day.

Reimbursement

How does patient length of stay influence the consideration of whether bronchoscopic lung volume reduction is designated as an inpatient procedure?

Medicare and other payers require the patient stay in the hospital greater than 48 hours (Two-Midnight Rule) to be considered an inpatient stay. Case specific circumstances (e.g. need for monitoring) will assist the physician in determining how long the patient needs to stay in the hospital, and whether the EBV insertion is designated as an inpatient or outpatient hospital procedure. It is important if the physician deems the patient needs to stay in the hospital greater than 48 hours that they document the reason why this clinical decision was made.

Spiration® Reimbursement Helpline

Olympus has designated services and programs available to assist you with all of your reimbursement questions and needs related to the Spiration Valve System.

Contact Information:
Hours: 9:00 am – 5:00 pm Eastern Standard Time
Phone: 855-428-7346
Email: SpirationValveReim@olympus.com

Need Basic Reimbursement Information?

Feel free to call or email us and our trained staff can assist you with questions on billing, coding, and reimbursement for the Spiration Valve System.

Looking for More Support?

Experienced coding experts are available to help providers navigate your case-specific denials and prior authorizations. Our experts can assist with communication and paperwork between your payers, and then update you on case-specific decisions through a secured provider portal.

If you are interested, please contact the Spiration Reimbursement Helpline to learn more about this service.

NOTE: A signed Business Associates Agreement is required for this level of service.

1. Kon SS, et al. Lancet Respir Med. 2014 Mar;2(3):195-203. doi: 10.1016/S2213-2600(14)70001-3.
2. Gompelmann D, et al. Respiration. 2019;97(2):145-152. doi: 10.1159/000492274.
3. Li S, et al. Respiration. 2018:1-12. doi:10.1159/000494327.

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