**Supplementary table1:**

**List of abbreviations**

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| **Abbreviations** | **Full name** |
| PPCs | Postoperative Pulmonary Complications |
| COPD | Chronic Obstructive Pulmonary Disease |
| 6MWT | Six-minute Walk Test |
| 6MWD | Six-minute Walk Distance |
| CABG | Coronary Artery Bypass Grafting |
| TAVR | Transcatheter Aortic Valve Replacement |
| SAVR | Surgical Aortic Valve Replacement |
| ECG | Electrocardiogram |
| SpO2 | Oxygen saturation |
| ARISCAT | Assess respiratory risk in surgical patients in Catalonia |
| MGS | Melbourne Group Scale |
| NYHA | New York Heart Association classification |
| ATS | American Thoracic Society |
| LR | Logistic Regression |
| SVM | Support Vector Machine |
| LDA | Linear Discriminant Analysis |
| KNN | K-Nearest Neighbor |
| RF | Random Forest Classifier |
| AUC | The area under the receiver operating characteristic curve |
| ACC | Accuracy |
| SHAP | Shapley additive explanation |
| CI | Confidence Interval |
| OR | Odds Ratio |
| MV\_in\_base | Mean inspiratory minute ventilation during baseline stage |
| MV\_in\_max | Maximum inspiratory minute ventilation during the walking phase |
| VT\_ex\_re | Mean expiratory tidal volume during recovery phase |