### Table S1: Parameters of the CT equipment

|                        | GE Healthcare CT | Siemens CT |
|------------------------|------------------|------------|
| Kilovoltage            | 120 Kv           | 120 Kv     |
| Slice thickness        | 0.625 mm         | 0.6 mm     |
| Reconstruction         | 1 mm             | 1mm        |
| Rotation time          | 0.5s             | 0.5s       |
| Inspiration breath hold| Yes              | Yes        |
| Tube current           | 200–500mAs       | 110mAs     |

### Table S2: Information of segmentation algorithm

|                                | Training sets (N=247) | Validation sets (N =105) | P value |
|--------------------------------|-----------------------|--------------------------|---------|
| Age                            | 51.35 ± 16.62         | 49.21 ± 17.042           | 0.274   |
| Total infection volume proportion | 6.37 ± 8.72           | 6.39 ± 8.67              | 0.980   |
| Male proportion                | 139/247               | 49/105                   | 0.107   |
| ARDS existence                 | 36/247                | 15/105                   | 1.000   |
| Accuracy Metrics                        | Mean   | Standard deviation | Median | 25% IQR | 75% IQR | Number of infected samples |
|----------------------------------------|--------|--------------------|--------|---------|---------|---------------------------|
| Dice Similarity Coefficient            | 91.6%  | 10.0%              | 92.2%  | 89.0%   | 94.6%   | 300                       |
| Volume Estimation Error (cm$^3$)       | 10.7   | 16.7               | 5.9    | 1.8     | 13.9    | 300                       |
| POI (The whole lung)                   | 0.3%   | 0.4%               | 0.1%   | 0.0%    | 0.4%    | 300                       |
| POI (Left upper lobe)                  | 0.4%   | 1.0%               | 0.1%   | 0.0%    | 0.4%    | 233                       |
| POI (Left lower lobe)                  | 0.7%   | 1.6%               | 0.3%   | 0.1%    | 1.0%    | 267                       |
| POI (Right upper lobe)                 | 0.3%   | 0.7%               | 0.1%   | 0.0%    | 0.5%    | 213                       |
| POI (Right middle lobe)                | 0.3%   | 0.7%               | 0.1%   | 0.0%    | 0.5%    | 204                       |
| POI (Right lower lobe)                 | 0.6%   | 1.1%               | 0.3%   | 0.1%    | 0.9%    | 275                       |
| POI (Left upper lobe / posterior tip)  | 0.5%   | 1.0%               | 0.1%   | 0.0%    | 0.5%    | 189                       |
| POI (Left upper lobe / anterior)       | 0.5%   | 1.2%               | 0.2%   | 0.0%    | 0.5%    | 158                       |
| POI (Left upper lobe / upper tongue)   | 0.7%   | 1.7%               | 0.2%   | 0.0%    | 0.9%    | 192                       |
| POI (Left upper lobe / lower tongue)   | 0.7%   | 1.8%               | 0.2%   | 0.0%    | 0.8%    | 175                       |
| POI (Left lower lobe / dorsal)         | 0.9%   | 2.1%               | 0.4%   | 0.1%    | 1.2%    | 224                       |
| POI (Left lower lobe / anterior medial basal) | 0.6% | 1.4%               | 0.2%   | 0.0%    | 0.8%    | 209                       |
| POI (Left lower lobe / outer basal)    | 1.1%   | 2.5%               | 0.5%   | 0.1%    | 1.7%    | 228                       |
| POI (Left lower lobe / posterior basal) | 1.1%  | 2.4%               | 0.5%   | 0.1%    | 1.6%    | 233                       |
| POI (Right upper lobe / apical)        | 0.4%   | 1.1%               | 0.1%   | 0.0%    | 0.5%    | 142                       |
| POI (Right upper lobe / back)          | 0.7%   | 1.7%               | 0.2%   | 0.0%    | 0.8%    | 186                       |
| POI (Right upper lobe / anterior)      | 0.4%   | 1.1%               | 0.1%   | 0.0%    | 0.9%    | 151                       |
| POI (Right middle lobe / lateral)      | 0.6%   | 1.5%               | 0.1%   | 0.0%    | 0.6%    | 183                       |
| POI (Right middle lobe / medial)       | 0.3%   | 0.8%               | 0.1%   | 0.0%    | 0.4%    | 167                       |
| POI (Right lower lobe / dorsal)        | 0.9%   | 1.9%               | 0.4%   | 0.1%    | 1.4%    | 233                       |
| POI (Right lower lobe / inner basal)   | 0.6%   | 1.4%               | 0.3%   | 0.1%    | 0.9%    | 162                       |
| POI (Right lower lobe / anterior basal) | 0.6% | 1.4%               | 0.1%   | 0.0%    | 0.9%    | 210                       |
| POI (Right lower lobe / outer basal)   | 0.9%   | 1.8%               | 0.4%   | 0.1%    | 1.2%    | 236                       |
| POI (Right lower lobe / posterior basal)| 1.0% | 2.0%               | 0.5%   | 0.1%    | 1.6%    | 249                       |
Radscore:
0.647*original_firstorder_Maximum - 1.286*original_shape_MeshVolume -
4.531*original_shape_SurfaceVolumeRatio - 0.22*original_ngtdm_Complexity -
0.498*original_ngtdm_Busyness + 1.281*original_gllrm_RunLengthNonUniformity -
2.12*original_firstorder_Skewness - 2.848*original_shape_Sphericity -
0.605*original_firstorder_TotalEnergy + 1.224*original_gldm_DependenceNonUniformity -
1.327*original_gldm_DependenceEntropy -
0.571*original_shape_LeastAxisLength + 0.177*original_firstorder_Minimum -
0.266*original_glszm_ZoneEntropy - 0.807*original_firstorder_InterquartileRange -
0.348*original_shape_MajorAxisLength - 0.691*original_firstorder_Kurtosis + -5.084