

Appendix 1***Association of radiologist-detected and 3D nnU-Net-derived computed tomography (CT) cavity volume with a clinical index of mycobacterial diseases***

Receiver operating characteristic (ROC) curves were drawn to determine the area under the curve (AUC) for assessing the diagnostic accuracy of radiologist-detected and nnU-Net-derived per-case CT cavity volume of thirty-eight validation cases for sputum positivity and the necessity of treatment in pulmonary tuberculosis (TB) and non-tuberculous mycobacterial pulmonary disease (NTM-PD), respectively.

For treatment necessity of NTM-PD, the per-case CT cavity volume of validation cases provided an AUC of 0.870 [95% confidence interval (CI): 0.630–0.980; $P < 0.001$] by radiologist-derived cavities and an AUC of 0.851 (95% CI: 0.606–0.972; $P < 0.001$) by deep learning model-detected cavities. For the sputum positivity in TB, the AUC values obtained from radiologist-derived and nnU-Net detected cavities were not significant [an AUC of 0.613 (95% CI: 0.313–0.819; $P = 0.477$) in radiologist-derived cavities and an AUC of 0.547 (95% CI: 0.312–0.767; $P = 0.761$) in deep learning model-detected cavities]. The pairwise comparison of between the ROC curves of radiologists and nnU-Net detected cavities did not show a significant difference in both NTM-PD ($P = 0.316$) and TB ($P = 0.116$).

The analysis on the association between 3D nnU-Net detected cavity volume and TB sputum smear positivity or NTM treatment necessity showed partially discordant results from the expected correlation. The unanticipated outcome is assumed to be caused by a small number of the validation group. Further studies with a larger sample size warrant for more effective analysis on this topic.