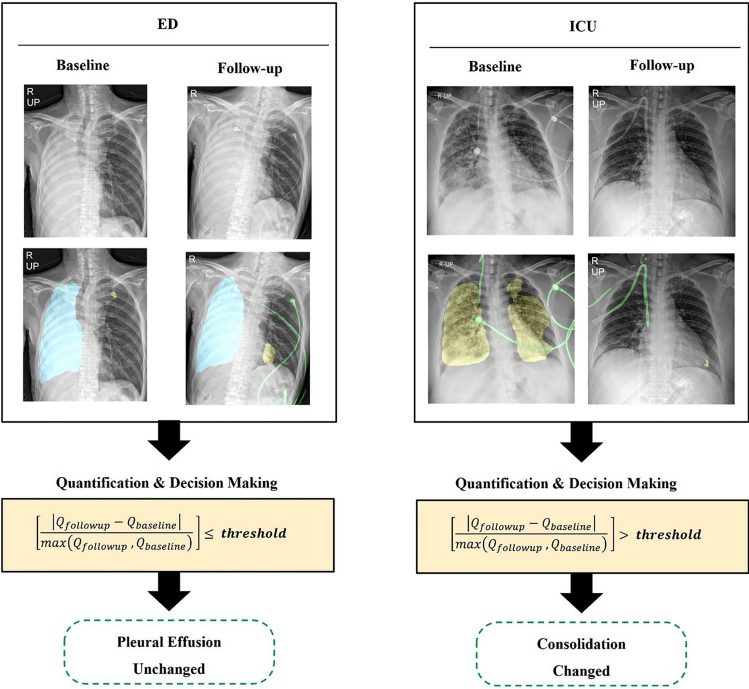
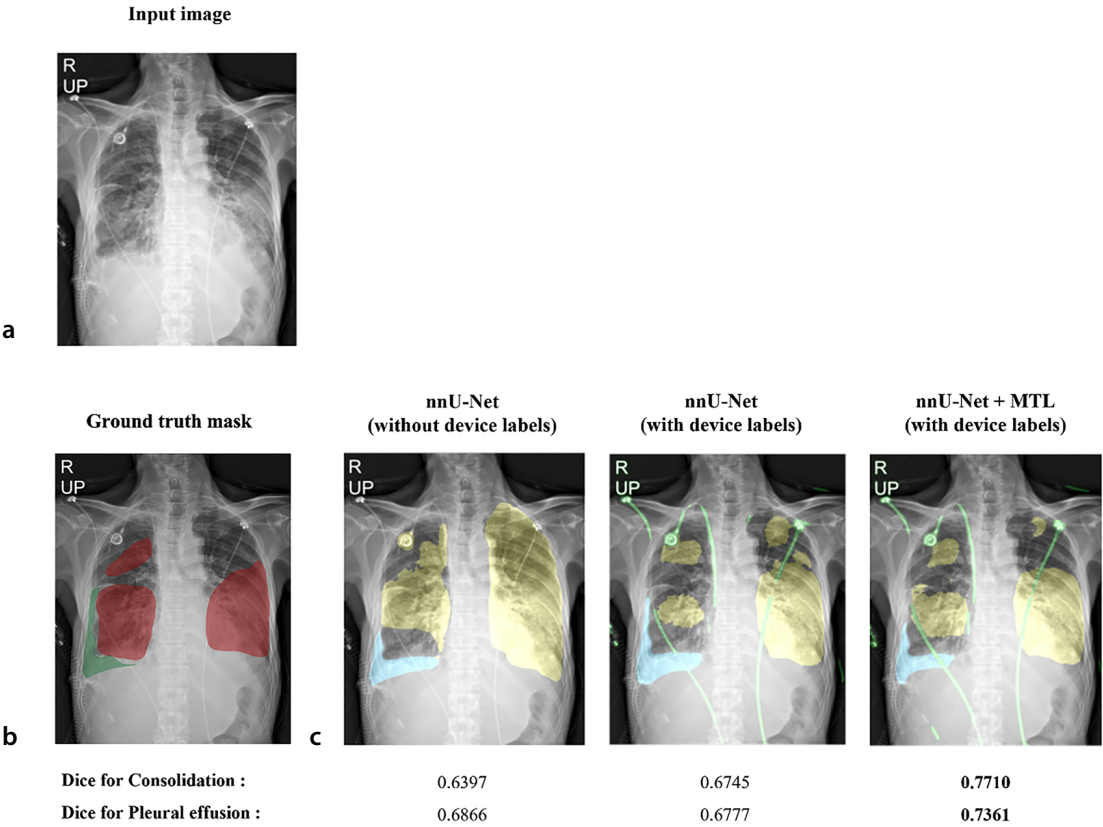


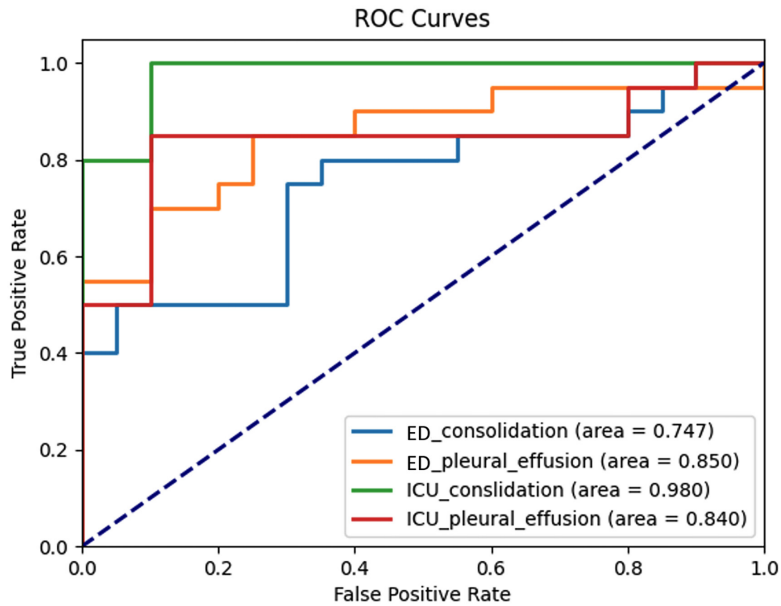
Supplementary Figures



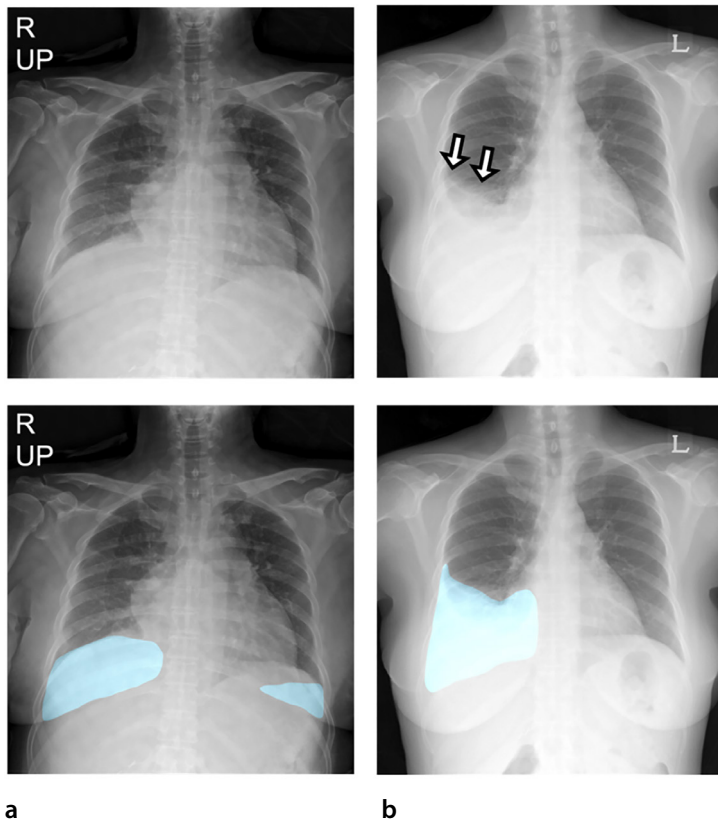
Supplementary Figure 1. Determination of unchanged/changed in the ED and ICU. The yellow area represents consolidation, while the sky-blue area indicates pleural effusion. ED, emergency department; ICU, intensive care unit.



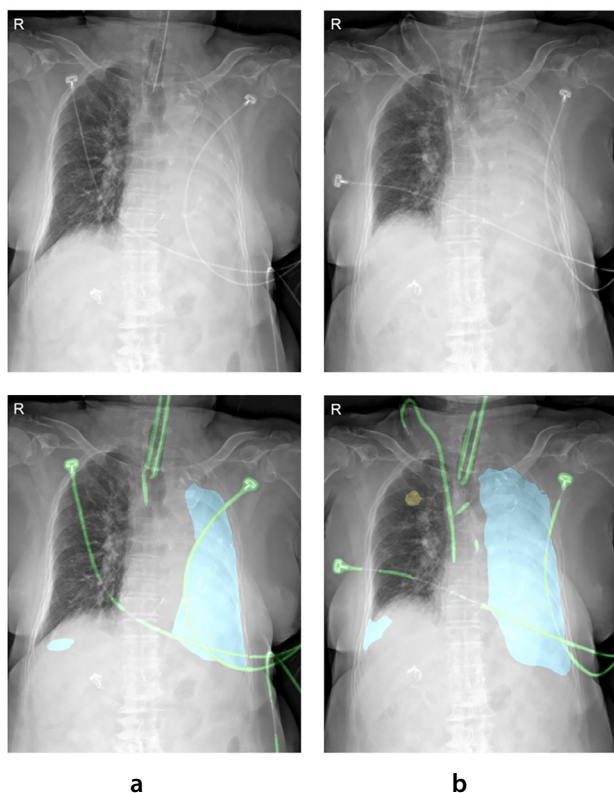
Supplementary Figure 2. Segmentation results across models with various training settings. (a) Original input image. (b) The ground-truth mask by a thoracic radiologist. The red area represents a consolidation, while the green area indicates pleural effusion. (c) Segmentation results from three different settings. The yellow area represents consolidation, while the sky-blue area indicates pleural effusion. Green areas represent the segmentation of medical devices. The Dice score was calculated for each abnormality. MTL, multi-task learning.



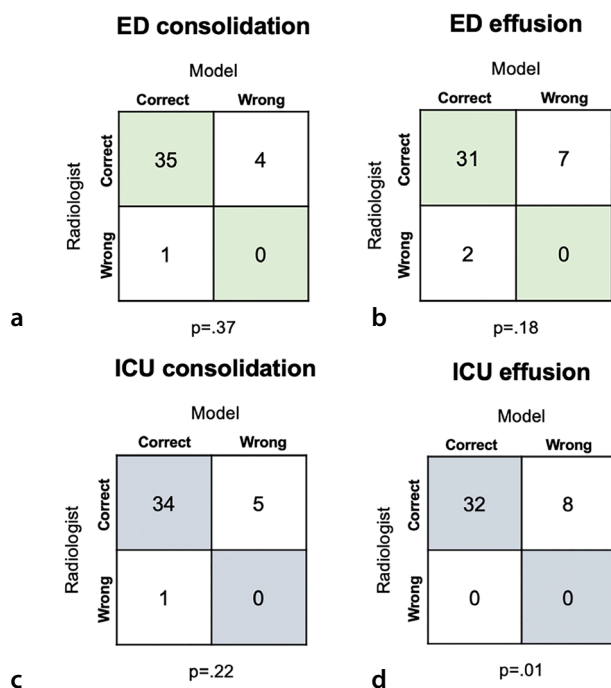
Supplementary Figure 3. Receiver operating characteristic (ROC) curves show the performance of the algorithm for each department and the abnormality lesion in the tuning set. Area means the area under the ROC curves. ED, emergency department; ICU, intensive care unit.



Supplementary Figure 4. Example of failure in detecting “changed” in pleural effusion in the intensive care unit. (a) Baseline chest radiograph (CR) obtained in a semi-supine position showed no clear fluid level, but the model segmented increased opacity along both hemidiaphragms as pleural effusion (sky-blue areas). The presence of true effusion could not be confirmed on CR alone. (b) In the follow-up CR acquired in an upright position, overt right pleural effusion (arrows) was evident and correctly segmented by the model (sky-blue areas). The radiologist interpreted this case as “changed,” whereas the model classified it as “unchanged.”



Supplementary Figure 5. Example of failure in detecting “unchanged” pleural effusion in the intensive care unit. (a) Baseline chest radiograph (CR) and (b) follow-up CR obtained in the supine position both showed diffuse left pleural effusion opacifying the left hemithorax. Due to slight rightward rotation on the baseline CR, the segmented area for pleural effusion (sky-blue areas) appeared smaller, leading the model to classify the case as “changed,” whereas the radiologist interpreted it as “unchanged.”



Supplementary Figure 6. Comparisons between the model and radiologist in assessing change/unchanged status of consolidation or pleural effusion. (a) for consolidation in the emergency department (ED), (b) for effusion in the ED, (c) for consolidation in the intensive care unit (ICU), and (d) for effusion in the ICU. *P* values were calculated using the McNemar test to compare accuracy.