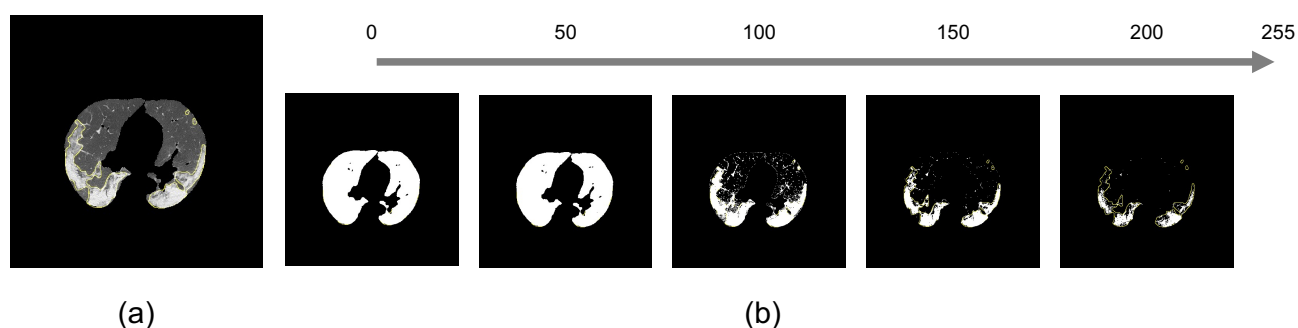
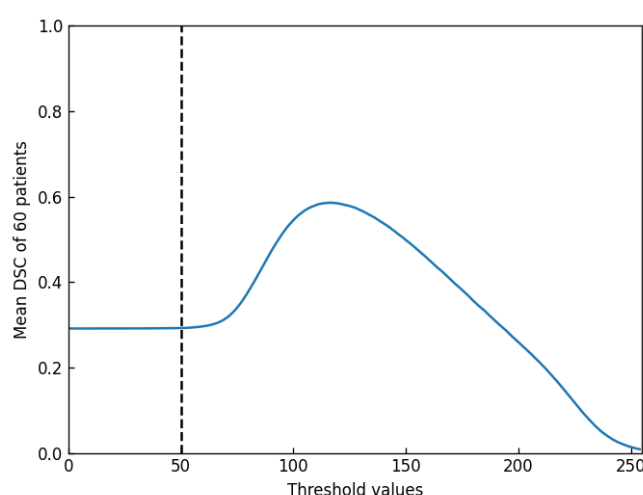


Method for determining the initial threshold value for accumulated BN maps

The initial threshold value for accumulated BN maps was determined using the Dice's similarity coefficient (DSC) between binary image and pneumonia region (Supplementary Figure 2 (a)). An array of binary images was created by multiple-threshold values from 0 to 255 with increments of 1 (Supplementary Figure 2 (b)). The DSCs between each binary image and the pneumonia regions was calculated. Then, the relationships between threshold values and the mean DSC of the 60 patients were plotted as shown in Supplementary Figure 3. As a result, the DSC curves initially remained stable, then gradually increased and decreased (Supplementary Figure 3). The onset of DSC change indicates the beginning of binary processing in the pneumonia region. A threshold value of 50 was considered appropriate as a margin for the onset of DSC change. Therefore, the initial threshold value for the accumulated BN maps was determined to be 50 based on an approximate estimate.



Supplementary Fig. 2 (a) Pneumonia region overlapping lung image (b) Changes of the binary images by multiple-threshold values



Supplementary Fig. 3 Relationships between threshold values and the mean DSC of the 60 patients