

## **FIGURE LEGENDS FOR APPENDX FIGURES**

**Appendix Figure 1.** Relationship between measured CVP and estimated CVP in the test cohort with color in each patient (Figure 2A is just colored in each patient)

Both measured CVP and estimated CVP seem to lay in linear in each patient.

Statistical assessment is similar with Figure 2A.

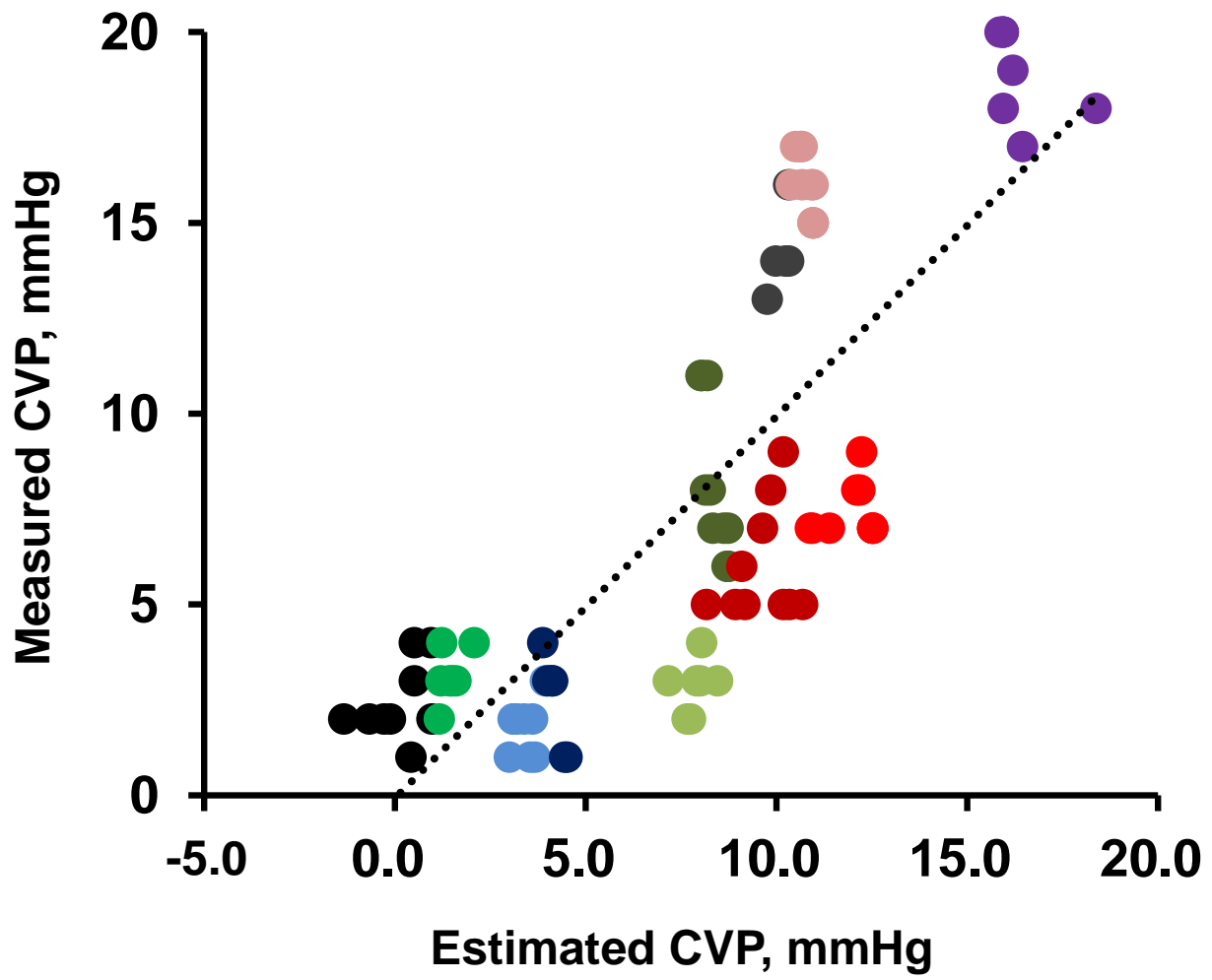
**Appendix Figure 2.** ROC analysis to estimate  $CVP \geq 12$  mmHg by using the equation.

## **APPENDIX**

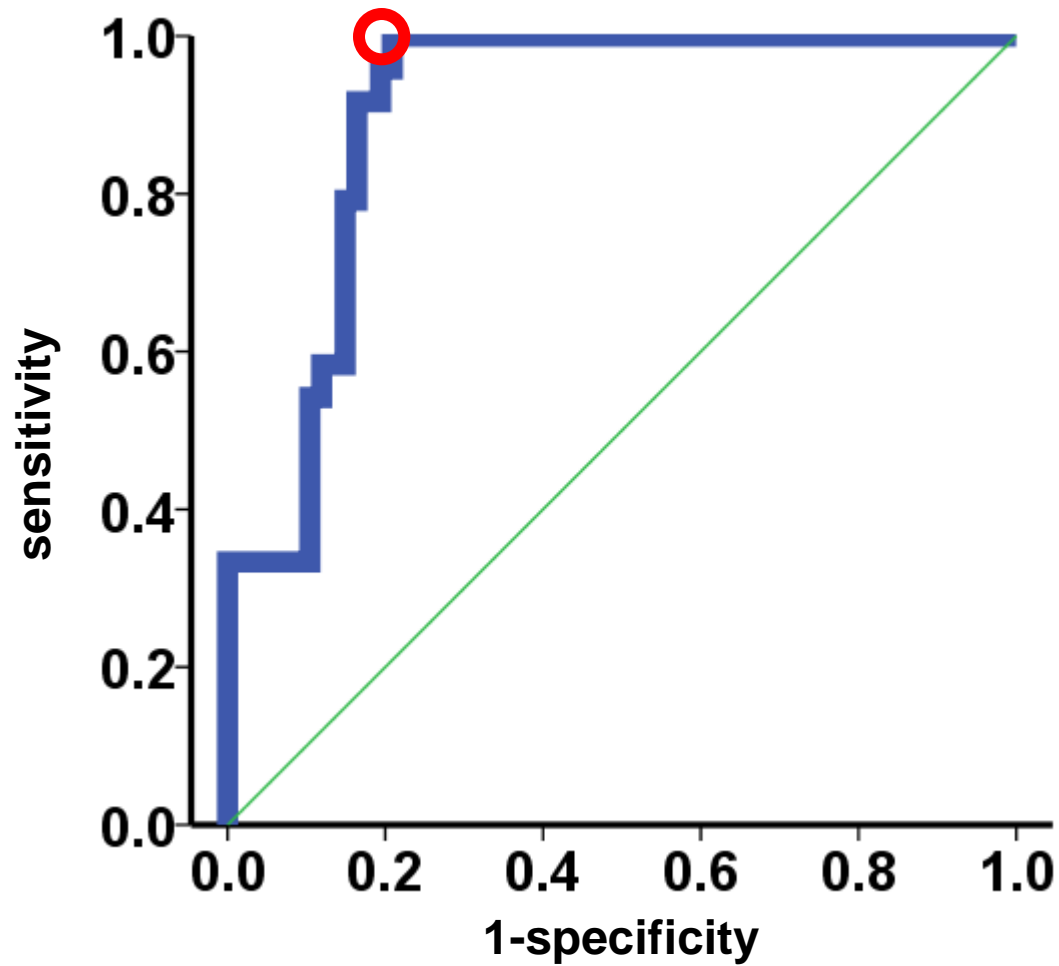
### **The methodology to create the equation to estimate CVP**

Considering the results of linear regression analyses for the estimation of CVP (see Table 3), B values of each variable were used for coefficients (i.e., B value, -0.086, 0.013, and -0.020 for RA lead impedance, RV lead impedance, and LV lead impedance, respectively). B value of the constant, 47.9, was used as a constant of the equation. As a result, the following equation was calculated:

$$\text{estimated CVP (mmHg)} = 47.9 - (0.086 \times \text{RA lead impedance } [\Omega]) + (0.013 \times \text{RV lead impedance } [\Omega]) - (0.020 \times \text{LV lead impedance } [\Omega]).$$



Appendix Figure 1



<b>Endpoint</b>	<b>CVP <math>\geq</math>12 mmHg</b>
<b>Area under the curve</b>	<b>0.905</b>
<b>Sensitivity</b>	<b>100.0%</b>
<b>Specificity</b>	<b>79.1%</b>

**Appendix Figure 2**