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Let:

$$TP = \text{true Positives} = \sum_{\text{cases}} C_{pi} C_{ni} S_{wi}$$

(note "i cases" includes All cases)

$$FN = \text{false Negatives} = \sum_i (1 - C_{pi}) C_{ni} S_{wi}$$

$$TN = \text{True Negative} = \sum_i (1 - C_{pi}) (1 - C_{ni}) S_{wi}$$

$$FP = \text{False Positive} = \sum_i C_{pi} (1 - C_{ni}) S_{wi}$$

$$\text{Sensitivity} = TP / (TP + FN)$$

$$\text{Specificity} = TN / (TN + FP)$$

$$PPV = TP / (TP + FP)$$

and if we were curious

$$NPV = TN / (TN + FN)$$