

②

True Neg

$$\text{specificity} = \frac{\text{True Neg}}{\text{True Neg} + \text{False Pos}}$$

$$= \frac{\sum_{i \text{ cases}} [(1-c_{pi})(1-c_{ni})S_{wi}]}{\sum_{i \text{ cases}} [(1-c_{pi})(1-c_{ni})S_{wi}] + \sum_{i \text{ cases}} [c_{pi}(1-c_{ni})S_{wi}]}$$

$$= \frac{\sum_{i \text{ cases}} [(1-c_{pi})(1-c_{ni})S_{wi}] + \sum_{i \text{ cases}} [c_{pi}(1-c_{ni})S_{wi}]}{\sum_{i \text{ cases}} [(1-c_{pi})(1-c_{ni})S_{wi}] + \sum_{i \text{ cases}} [c_{pi}(1-c_{ni})S_{wi}]}$$

Note the $S_{wi} \neq S_{wj}$ for All i, j because some no-complications cases get sampled w/ probability 1 b/c the pt had a complication in a different case.

True Pos

$$\text{PPV} = \frac{\text{True Pos}}{\text{True Pos} + \text{False Pos}}$$

$$= \frac{\sum_{i \text{ cases}} [c_{pi}c_{ni}S_{wi}]}{\sum_{i \text{ cases}} [c_{pi}c_{ni}S_{wi}] + \sum_{i \text{ cases}} [c_{pi}(1-c_{ni})S_{wi}]}$$

$$= \frac{\sum_{i \text{ cases}} [c_{pi}c_{ni}S_{wi}] + \sum_{i \text{ cases}} [c_{pi}(1-c_{ni})S_{wi}]}{\sum_{i \text{ cases}} [c_{pi}c_{ni}S_{wi}] + \sum_{i \text{ cases}} [c_{pi}(1-c_{ni})S_{wi}]}$$