

| Diseases                    | Receiver operating characteristics (ROC) AUC <sup>#</sup> |                |                       |                 |                       | Precision-recall (PR) AUC <sup>#</sup> |                |                       |                 |                       |                          |
|-----------------------------|-----------------------------------------------------------|----------------|-----------------------|-----------------|-----------------------|----------------------------------------|----------------|-----------------------|-----------------|-----------------------|--------------------------|
|                             | STL<br>ROC<br>AUC                                         | Pan-cancer MTL |                       | Pan-disease MTL |                       | STL<br>PR<br>AUC                       | Pan-cancer MTL |                       | Pan-disease MTL |                       | Prevalence<br>(Baseline) |
|                             |                                                           | ROC<br>AUC     | Relative<br>increase* | ROC<br>AUC      | Relative<br>increase* |                                        | PR<br>AUC      | Relative<br>increase* | PR<br>AUC       | Relative<br>increase* |                          |
| Malignant melanoma          | 52.80%                                                    | <b>59.20%</b>  | <b>234%</b>           | 58.10%          | 194%                  | 1.33%                                  | <b>1.70%</b>   | <b>790%</b>           | 1.61%           | 593%                  | 1.28%                    |
| Non-melanoma skin cancer    | 61.50%                                                    | 62.40%         | 8%                    | <b>62.90%</b>   | <b>12%</b>            | 9.76%                                  | 10.03%         | 8%                    | <b>10.21%</b>   | <b>14%</b>            | 6.65%                    |
| Skin cancer                 | 61.00%                                                    | 61.80%         | 7%                    | <b>61.90%</b>   | <b>8%</b>             | 10.40%                                 | 10.73%         | 11%                   | <b>10.86%</b>   | <b>15%</b>            | 7.32%                    |
| Lung cancer                 | 59.10%                                                    | 60.30%         | 14%                   | <b>60.50%</b>   | <b>16%</b>            | 1.39%                                  | 1.44%          | 11%                   | <b>1.51%</b>    | <b>23%</b>            | 0.90%                    |
| Intrathoracic cancer        | 59.10%                                                    | 60.70%         | 18%                   | <b>61.00%</b>   | <b>21%</b>            | 1.54%                                  | 1.58%          | 7%                    | <b>1.65%</b>    | <b>20%</b>            | 1.01%                    |
| Colorectal cancer           | 54.40%                                                    | 56.40%         | 46%                   | <b>57.10%</b>   | <b>60%</b>            | 2.00%                                  | 2.21%          | 71%                   | <b>2.29%</b>    | <b>100%</b>           | 1.72%                    |
| Colon cancer                | 53.90%                                                    | 55.70%         | 47%                   | <b>56.10%</b>   | <b>59%</b>            | 1.38%                                  | 1.49%          | 51%                   | <b>1.49%</b>    | <b>53%</b>            | 1.17%                    |
| Rectal cancer               | 54.70%                                                    | 57.90%         | 69%                   | <b>59.30%</b>   | <b>100%</b>           | 0.77%                                  | 0.88%          | 98%                   | <b>0.89%</b>    | <b>116%</b>           | 0.67%                    |
| Bladder cancer              | 64.50%                                                    | 67.90%         | 24%                   | <b>68.40%</b>   | <b>27%</b>            | 0.80%                                  | 0.87%          | 24%                   | <b>0.92%</b>    | <b>42%</b>            | 0.51%                    |
| Uterine cancer              | 51.20%                                                    | <b>53.20%</b>  | <b>177%</b>           | 51.80%          | 50%                   | 1.08%                                  | <b>1.18%</b>   | <b>224%</b>           | 1.10%           | 49%                   | 1.04%                    |
| Cervical cancer             | 55.20%                                                    | 55.40%         | 4%                    | <b>56.50%</b>   | <b>24%</b>            | 1.80%                                  | 1.88%          | 35%                   | <b>1.97%</b>    | <b>76%</b>            | 1.58%                    |
| Prostate cancer             | <b>60.00%</b>                                             | 59.70%         | -3%                   | 59.60%          | -4%                   | 8.33%                                  | <b>8.53%</b>   | <b>9%</b>             | 8.37%           | 2%                    | 6.06%                    |
| Breast cancer               | 57.00%                                                    | <b>58.30%</b>  | <b>19%</b>            | 58.10%          | 16%                   | 9.38%                                  | 9.67%          | 13%                   | <b>9.79%</b>    | <b>20%</b>            | 7.25%                    |
| Female genital tract cancer | 54.00%                                                    | 54.30%         | 7%                    | <b>54.50%</b>   | <b>11%</b>            | 3.15%                                  | 3.27%          | 41%                   | <b>3.39%</b>    | <b>84%</b>            | 2.86%                    |
| Male genital tract cancer   | 53.60%                                                    | <b>56.10%</b>  | <b>68%</b>            | 54.50%          | 24%                   | 2.57%                                  | <b>2.73%</b>   | <b>57%</b>            | 2.59%           | 9%                    | 2.28%                    |
| Lymphoma                    | 50.40%                                                    | 56.80%         | 1442%                 | <b>57.90%</b>   | <b>1704%</b>          | 0.73%                                  | <b>0.82%</b>   | <b>102%</b>           | 0.82%           | 98%                   | 0.64%                    |
| Non-hodgkins lymphoma       | 52.10%                                                    | 56.60%         | 220%                  | <b>57.80%</b>   | <b>278%</b>           | 0.61%                                  | 0.68%          | 81%                   | <b>0.69%</b>    | <b>95%</b>            | 0.53%                    |

<sup>#</sup>Best AUC highlighted in bold

$$* \text{Relative increase} = \frac{(MTL \text{ AUC} - \text{baseline AUC}) - (STL \text{ AUC} - \text{baseline AUC})}{STL \text{ AUC} - \text{baseline AUC}} \times 100\%$$