

# Supplementary Materials: Increased Hospitalization and Mortality from COVID-19 in Prostate Cancer Patients

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**Table S1.** Baseline characteristics of COVID-19 – ve and COVID-19 + ve prostate cancer patients.

| Covariates              | COVID-19 – ve (n = 3956) | COVID-19 + ve (n = 228) | p-Value |
|-------------------------|--------------------------|-------------------------|---------|
| Median Age [IQR]:       | 71 (64, 78)              | 73 (67, 79)             | 0.0055  |
| Race/Ethnicity:         |                          |                         | <0.0001 |
| African American        | 1054 (26.64%)            | 64 (28.07%)             |         |
| White                   | 1697 (42.90%)            | 64 (28.07%)             |         |
| Asian                   | 77 (1.95%)               | 7 (3.07%)               |         |
| Hispanic                | 761 (19.24%)             | 70 (30.70%)             |         |
| Others                  | 285 (7.20%)              | 20 (8.77%)              |         |
| Unknown                 | 82 (2.07%)               | 3 (1.32%)               |         |
| Smoking:                |                          |                         | 0.3195  |
| Current                 | 314 (7.94%)              | 13 (5.70%)              |         |
| Never                   | 1769 (44.72%)            | 106 (46.49%)            |         |
| Not Asked               | 33 (0.83%)               | 0                       |         |
| Quit                    | 1840 (46.51%)            | 109 (47.81%)            |         |
| HTN:                    |                          |                         | 0.2153  |
| No                      | 1867 (47.19%)            | 98 (42.98%)             |         |
| Yes                     | 2089 (52.81%)            | 130 (57.02%)            |         |
| Diabetes:               |                          |                         | 0.0003  |
| No                      | 3151 (79.65%)            | 159 (69.74%)            |         |
| Yes                     | 805 (20.35%)             | 69 (30.26%)             |         |
| Asthma                  |                          |                         | 0.8638  |
| No                      | 3755 (94.92%)            | 217 (95.18%)            |         |
| Yes                     | 201 (5.08%)              | 11 (4.82%)              |         |
| COPD                    |                          |                         | 0.1024  |
| No                      | 3744 (94.64%)            | 210 (92.11%)            |         |
| Yes                     | 212 (5.36%)              | 18 (7.89%)              |         |
| Crohn's Disease         |                          |                         | 1       |
| No                      | 3938 (99.54%)            | 227 (99.56%)            |         |
| Yes                     | 18 (0.46%)               | 1 (0.44%)               |         |
| Ulcerative_colitis      |                          |                         | 0.1526  |
| No                      | 3934 (99.44%)            | 225 (98.68%)            |         |
| Yes                     | 22 (0.56%)               | 3 (1.32%)               |         |
| Obesity                 |                          |                         | 0.0012  |
| No                      | 3705 (93.66%)            | 201 (88.16%)            |         |
| Yes                     | 251 (6.34%)              | 27 (11.84%)             |         |
| Coronary Artery Disease |                          |                         | 0.6439  |
| No                      | 3037 (76.77%)            | 172 (75.44%)            |         |
| Yes                     | 919 (23.23%)             | 56 (24.56%)             |         |

**Table S2.** Baseline characteristics of COVID-19 – ve and COVID-19 + ve Genitourinary cancer patients.

| Covariates        | COVID-19 – ve (n = 6320) | COVID-19 + ve (n = 350) | p-Value |
|-------------------|--------------------------|-------------------------|---------|
| Median Age [IQR]: | 69 (61, 77)              | 71 (63, 79)             | 0.0343  |

|                         |               |              |         |
|-------------------------|---------------|--------------|---------|
| Race/Ethnicity:         |               |              | 0.0023  |
| African American        | 458 (19.37%)  | 30 (24.59%)  |         |
| White                   | 1149 (48.60%) | 41 (33.61%)  |         |
| Asian                   | 104 (4.40%)   | 3 (2.46%)    |         |
| Hispanic                | 468 (19.8%)   | 34 (27.87%)  |         |
| Others                  | 148 (6.26%)   | 14 (11.48%)  |         |
| Unknown                 | 37 (1.57%)    | 0            |         |
| Smoking:                |               |              | 0.0016  |
| Current                 | 309 (13.07%)  | 3 (2.46%)    |         |
| Never                   | 856 (36.21%)  | 59 (48.36%)  |         |
| Not Asked               | 32 (1.35%)    | 2 (1.64%)    |         |
| Quit                    | 1167 (49.37%) | 58 (47.54%)  |         |
| HTN:                    |               |              | 0.0381  |
| No                      | 1235 (52.24%) | 52 (42.62%)  |         |
| Yes                     | 1129 (47.76%) | 70 (57.38%)  |         |
| Diabetes:               |               |              | 0.0073  |
| No                      | 1902 (80.46%) | 86 (70.49%)  |         |
| Yes                     | 462 (19.54%)  | 36 (29.51%)  |         |
| Asthma                  |               |              | 0.0059  |
| No                      | 2234 (94.50%) | 108 (88.52%) |         |
| Yes                     | 130 (5.50%)   | 14 (11.48%)  |         |
| COPD                    |               |              | 0.8090  |
| No                      | 2203 (93.19%) | 113 (92.62%) |         |
| Yes                     | 161 (6.81%)   | 9 (7.38%)    |         |
| Crohn's Disease         |               |              | 1       |
| No                      | 2351 (99.45%) | 122 (100%)   |         |
| Yes                     | 13 (0.55%)    | 0            |         |
| Ulcerative_colitis      |               |              | 1       |
| No                      | 2344 (99.15%) | 121 (99.18%) |         |
| Yes                     | 20 (0.85%)    | 1 (0.82%)    |         |
| Obesity                 |               |              | <0.0001 |
| No                      | 2197 (92.94%) | 101 (82.79%) |         |
| Yes                     | 167 (7.06%)   | 21 (17.21%)  |         |
| Coronary Artery Disease |               |              | 0.0005  |
| No                      | 1988 (84.09%) | 88 (72.13%)  |         |
| Yes                     | 376 (15.91%)  | 34 (27.87%)  |         |

**Table S3.** Baseline Characteristics for hospitalization in COVID-19 positive Prostate. cancer patients.

| Covariates        | Hospitalization – ve (n = 80) | Hospitalization +ve (n = 148) | p-Value |
|-------------------|-------------------------------|-------------------------------|---------|
| Median Age [IQR]: | 70 (64, 77)                   | 74 (69, 82)                   | 0.0016  |
| Race/Ethnicity:   |                               |                               | 0.3125  |
| African American  | 17 (21.25%)                   | 47 (31.76%)                   |         |
| White             | 26 (32.5%)                    | 38 (25.68%)                   |         |
| Asian             | 4 (5%)                        | 3 (2.03%)                     |         |
| Hispanic          | 27 (33.75%)                   | 43 (29.05%)                   |         |
| Others            | 5 (6.25%)                     | 15 (10.14%)                   |         |
| Unknown           | 1 (1.25%)                     | 2 (1.35%)                     |         |
| Smoking:          |                               |                               | 0.2923  |
| Current           | 7 (8.75%)                     | 6 (4.05%)                     |         |
| Never             | 38 (47.5%)                    | 68 (45.95%)                   |         |
| Not Asked         |                               |                               |         |
| Quit              | 35 (43.75%)                   | 74 (50%)                      |         |
| HTN:              |                               |                               | 0.3110  |

|                    |             |              |        |
|--------------------|-------------|--------------|--------|
| No                 | 38 (47.5%)  | 60 (40.54%)  |        |
| yes                | 42 (52.5%)  | 88 (59.46%)  |        |
| Diabetes:          |             |              | 0.0054 |
| No                 | 65 (81.25%) | 94 (63.51%)  |        |
| Yes                | 15 (18.75%) | 54 (36.49%)  |        |
| CAD:               |             |              | 0.1339 |
| No                 | 65 (81.25%) | 107 (72.3%)  |        |
| Yes                | 15 (18.75%) | 41 (27.7%)   |        |
| Crohns Disease     |             |              | 1      |
| No                 | 80 (100)    | 147 (99.32%) |        |
| Yes                | 0           | 1 (0.68%)    |        |
| Ulcerative Colitis |             |              | 1      |
| No                 | 79 (98.75%) | 146 (98.65%) |        |
| Yes                | 1 (1.25%)   | 2 (1.35%)    |        |
| ARDS               |             |              |        |
| No                 | 80 (100%)   | 148 (100%)   |        |
| COPD:              |             |              | 0.2334 |
| No                 | 76 (95%)    | 134 (90.54%) |        |
| Yes                | 4 (5%)      | 14 (9.46%)   |        |
| Obesity:           |             |              | 0.5268 |
| No                 | 72 (90%)    | 129 (87.16%) |        |
| Yes                | 8 (10%)     | 19 (12.84%)  |        |
| Asthma:            |             |              | 0.2    |
| No                 | 74 (92.5%)  | 143 (96.62%) |        |
| Yes                | 6 (7.5%)    | 5 (3.38%)    |        |

**Table S4.** Baseline Characteristics for mortality in COVID-19 positive Prostate cancer patients.

| Covariates        | Deceased –ve (n = 180) | Deceased + ve (n = 48) | p-Value |
|-------------------|------------------------|------------------------|---------|
| Median Age [IQR]: | 71 (67, 79)            | 77.5 (73, 89)          | 0.0003  |
| Race/Ethnicity:   |                        |                        | 0.0114  |
| African American  | 52 (28.89%)            | 12 (25%)               |         |
| White             | 44 (24.44%)            | 20 (41.67%)            |         |
| Asian             | 5 (2.78%)              | 2 (4.17%)              |         |
| Hispanic          | 63 (35%)               | 7 (14.58%)             |         |
| Others            | 15 (8.33%)             | 5 (10.42%)             |         |
| Unknown           | 1 (0.56%)              | 2 (4.17%)              |         |
| Smoking:          |                        |                        | 0.2687  |
| Current           | 10 (5.56%)             | 3 (6.25%)              |         |
| Never             | 79 (43.89%)            | 27(56.25%)             |         |
| Not Asked         |                        |                        |         |
| Quit              |                        |                        |         |
| HTN:              |                        |                        | 0.5924  |
| No                | 79 (43.89%)            | 19 (39.58%)            |         |
| yes               | 101 (56.11%)           | 29 (60.42%)            |         |
| Diabetes:         |                        |                        | 0.3717  |
| No                | 123 (68.33%)           | 36 (75%)               |         |
| Yes               | 57 (31.67%)            | 12 (25%)               |         |
| CAD:              |                        |                        | 0.2257  |
| No                | 139 (77.22%)           | 33 (68.75%)            |         |
| Yes               | 41 (22.78%)            | 15 (31.25%)            |         |
| Crohns Disease    |                        |                        | 1       |
| No                | 179 (99.44%)           | 48 (100%)              |         |
| Yes               | 1 (0.56%)              | 0                      |         |

|                    |              |             |        |
|--------------------|--------------|-------------|--------|
| Ulcerative Colitis |              |             | 1      |
| No                 | 177 (98.33%) | 48 (100%)   |        |
| Yes                | 3 (1.67%)    | 0           |        |
| ARDS               |              |             |        |
| No                 | 180 (100%)   | 48 (100%)   |        |
| COPD:              |              |             | 0.0043 |
| No                 | 171 (95%)    | 39 (81.25%) |        |
| Yes                | 9 (5%)       | 9 (18.75%)  |        |
| Obesity:           |              |             | 0.3971 |
| No                 | 157 (87.22%) | 44 (91.67%) |        |
| Yes                | 23 (12.78%)  | 4 (8.33%)   |        |
| Asthma:            |              |             | 1      |
| No                 | 171 (95%)    | 46 (95.83%) |        |
| Yes                | 9 (5%)       | 2 (4.17%)   |        |

**Table S5.** Frequency distribution in COVID-19 positive Prostate vs solid tumor (male) patients.

| Factors         | Prostate Cancer | Solid Cancer (male) | p-Value | Total COVID-19 positive cases |
|-----------------|-----------------|---------------------|---------|-------------------------------|
| Hospitalization | 148 (64.91%)    | 317 (49.45%)        | <0.0001 | 7729                          |
| ICU             | 29 (12.71%)     | 74(11.54%)          | <0.0001 | 1684                          |
| Intubation      | 16 (7.01%)      | 53 (8.26%)          | 0.4511  | 1121                          |
| Death           | 48 (21.05%)     | 117 (18.25%)        | 0.00023 | 1990                          |
| Total           | 228             | 641                 |         |                               |

**Table S6.** Incidence of COVID-19 by Race in prostate cancer patients compared to patients with solid cancer.

| Factors          | Prostate Cancer | Solid Cancer | P value |
|------------------|-----------------|--------------|---------|
| African American | 64 (5.80%)      | 321 (3.90%)  | 0.003   |
| White            | 64 (3.70%)      | 400 (2.82%)  | 0.0412  |
| Asian            | 7 (8.33%)       | 73 (2.20%)   | 0.0033  |
| Hispanic         | 70 (8.46%)      | 444 (5.37%)  | 0.0002  |
| Others           | 20 (6.55%)      | 120 (4.56%)  | 0.1226  |
| Unknown          | 3 (3.52%)       | 17 (3.31%)   | 1.00    |
| Total            | 4133            | 37078        |         |

**Table S7.** Adjusted Odds Ratio showing hospitalization rates in COVID-19 positive prostate cancer patients compared to breast cancer patients.

| Factors         | Odds Ratio (95% CI) | p-Value |
|-----------------|---------------------|---------|
| Age             | 1.04 (1.03, 1.06)   | <0.0001 |
| Hospitalization |                     |         |
| Absent          | Ref.                |         |
| Present         | 1.63 (1.09, 2.43)   | 0.0171  |

**Table S8.** Adjusted Odds Ratio showing mortality rates in COVID-19 positive prostate cancer patients compared to breast cancer patients.

| Factors   | Odds Ratio (95% CI) | p-Value |
|-----------|---------------------|---------|
| Age       | 1.04 (1.03, 1.06)   | <0.0001 |
| Mortality |                     |         |
| Absent    | Ref.                |         |
| Present   | 2.04 (1.20, 3.46)   | 0.0082  |