# Supplementary Appendix

## In-Hospital Mortality and Morbidity in Cancer Patients with COVID-19: a Nationwide Analysis from the United States

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**Supplementary Table S1:** ICD-10-CM codes for diseases and procedures used in the study

| **Diagnosis/procedure** | **ICD-10-CM code** |
|---|---|
| COVID-19 | U071 |
| Lung cancer | C34, C39.9 |
| Breast cancer | C50 |
| Colorectal cancer | C18, C19, C20 |
| Prostate cancer | C61 |
| Leukemia | C91, C92, C93, C94, C95 |
| Lymphoma | C81, C82, C83, C84, C85, C86, C88 |
| Multiple myeloma | C90 |
| Congestive heart failure | I110, I130, I50 |
| Coronary artery disease | I25 |
| Chronic pulmonary disease | J43, J44, J45, J455, J459, J47, J841, J848 |
| Diabetes mellitus | E08, E09, E10, E11, E13 |
| Hypertension | I10, I11X, I12X, I13XX, I15X, I16X, |
| Renal failure | N18, N19 |
| Liver disease | K70, K71, K72, K73, K74, K75, K76, K77 |
| Obesity | E66 |
| Smoking | F172, Z720, Z87891 |
| Alcohol abuse | F10 |
| Drug abuse | F11, F12, F13, F14, F15, F16 |
| Septic shock | R6521 |
| Acute respiratory failure | J9600, J9601, J9602, J9620, J9621, J9622 |
| Acute respiratory distress syndrome | J80 |
| Mechanical ventilation | 5A1935Z, 5A1945Z, 5A1955Z |

**Supplementary Table S2:** Outcomes according to cancer type

| | **Mortality % (95%CI), *P*-value** | **Morbidity % (95%CI), *P*-value** | | | | **Resource utilization mean (95%CI), *P*-value** | |
|---|---|---|---|---|---|---|---|
| | **In-hospital mortality** | **Septic shock** | **ARF** | **ARDS** | **MV** | **LOS (days)** | **Total hospital charges ($)** |
| Lung (n=4,400) | 20.91 (18.32-23.76), <0.001* | 3.52 (2.48-4.98), 0.772 | 61.59 (58.25-64.83), 0.001* | 3.75 (2.69-5.21), 0.045* | 9.89 (8.1-12.01), 0.601 | 7.69 (7.17-8.21), 0.425 | 72,097 (65,731-78,463), 0.046* |
| Breast (n=3,340) | 10.33 (8.23-12.9), 0.49 | 2.54 (1.59-4.04), 0.246 | 51.0 (46.84-54.35), 0.003* | 4.19 (2.91-6.0), 0.226 | 7.49 (5.73-9.72), 0.088 | 7.46 (6.86-8.07), 0.959 | 72,803 (63,644-81,961), 0.211 |
| Colorectal (n=1,675) | 19.1 (15.21-23.71), <0.001* | 3.88 (2.26-6.57), 0.586 | 55.82 (50.3-61.2), 0.913 | 4.18 (2.5-6.9), 0.386 | 12.24 (9.06-16.33), 0.082 | 8.47 (7.55-9.39), 0.034 | 83,099 (70,625-95,572), 0.47 |
| Prostate (n=4,080) | 19.0 (16.39-21.91), <0.001* | 3.19 (2.18-4.64), 0.799 | 56.74 (53.34-60.08), 0.715 | 4.66 (3.39-6.37), 0.473 | 8.21 (6.48-10.36), 0.258 | 7.62 (7.11-8.14), 0.585 | 76,990 (68,374-85,606), 0.709 |
| Leukemia (n=6,230) | 16.45 (14.48-18.64), <0.001* | 3.61 (2.65-4.9), 0.623 | 60.11 (57.26-62.9), 0.005* | 5.86 (4.64-7.37), 0.321 | 10.19 (8.52-12.14), 0.36 | 8.32 (7.86-8.78), <0.001* | 86,599 (77,179-96,020), 0.091 |
| Lymphoma (n=4,320) | 17.96 (15.55-20.66), <0.001* | 5.67 (4.29-7.45), <0.001* | 55.56 (52.21-58.85), 0.735 | 5.9 (4.5-7.71), 0.367 | 11.81 (9.8-14.15), 0.014* | 8.47 (7.85-9.1), 0.002* | 88,038 (78,021-98,055), 0.062 |
| Myeloma (n=3,000) | 18.33 (15.36-21.73), <0.001* | 4.83 (3.4-6.84), 0.039* | 54.17 (50.25-58.04), 0.321 | 5.5 (3.89-7.73), 0.765 | 11.83 (9.5-14.64), 0.037* | 8.14 (7.52-8.75), 0.035* | 94,002 (79,074-108,930), 0.033* |

Abbreviation: CI; confidence interval, ARF; acute respiratory failure, ARDS; acute respiratory syndrome, MV; mechanical ventilation, LOS; length of hospital stay

* Statistical significance (*P*-vale <0.005)