Socioeconomic Impacts of Insurance on Colorectal Cancer Mortality: Insights from the National Inpatient Sample

Analysis for RCOP NIS GI10

Ali Salman

## Preamble:

* **Reference Paper:** [Akinyemiju et al. 2016](https://doi.org/10.1186/s12885-016-2738-7)
* **Study Objective**: Examine the impact of healthcare insurance on in-hospital mortality and length of stay among patients with colorectal cancer (CRC).
* **Data Source**: Cross-sectional analysis of the National Inpatient Sample (NIS) from 2018 to 2020.
* **Patient Selection**: Included all hospitalized patients diagnosed with CRC.
* **Insurance Categories**:
  + Medicare
  + Medicaid
  + Private
  + Other
* **Primary Outcomes**:
  + In-hospital all-cause mortality
  + Total hospital length of stay (days)
* **Software:** All analyses were performed using R Version 4.4.1 (R Foundation for Statistical Computing, Vienna, Austria)

## Baseline Table:

| **Characteristic** | **Overall**, N = 784,2851 | **Medicare**, N = 426,3751 | **Medicaid**, N = 90,3351 | **Other**, N = 20,3801 | **Private**, N = 247,1951 | **p-value**2 |
| --- | --- | --- | --- | --- | --- | --- |
| Sex |  |  |  |  |  | <0.001 |
| Female | 368,205 (47%) | 210,710 (49%) | 40,280 (45%) | 6,660 (33%) | 110,555 (45%) |  |
| Male | 416,060 (53%) | 215,655 (51%) | 50,055 (55%) | 13,720 (67%) | 136,630 (55%) |  |
| Age, y | 66 (14) | 74 (10) | 54 (11) | 61 (14) | 56 (11) | <0.001 |
| Race |  |  |  |  |  | <0.001 |
| White | 534,500 (70%) | 310,395 (75%) | 42,395 (48%) | 12,880 (65%) | 168,830 (70%) |  |
| Asian or Pacific Islander | 26,840 (3.5%) | 11,530 (2.8%) | 4,660 (5.3%) | 595 (3.0%) | 10,055 (4.2%) |  |
| Black | 104,745 (14%) | 52,140 (13%) | 20,170 (23%) | 2,765 (14%) | 29,670 (12%) |  |
| Hispanic | 74,665 (9.7%) | 31,280 (7.5%) | 16,915 (19%) | 2,495 (13%) | 23,975 (9.9%) |  |
| Native American | 4,185 (0.5%) | 1,985 (0.5%) | 960 (1.1%) | 240 (1.2%) | 1,000 (0.4%) |  |
| Other | 21,600 (2.8%) | 9,265 (2.2%) | 3,500 (4.0%) | 765 (3.9%) | 8,070 (3.3%) |  |
| Metastasis | 340,965 (43%) | 167,625 (39%) | 46,450 (51%) | 9,775 (48%) | 117,115 (47%) | <0.001 |
| Residential income |  |  |  |  |  | <0.001 |
| $1 - $51,999 | 217,645 (28%) | 120,230 (29%) | 34,145 (39%) | 6,680 (34%) | 56,590 (23%) |  |
| $52,000 - $65,999 | 204,675 (27%) | 114,310 (27%) | 23,845 (27%) | 5,395 (27%) | 61,125 (25%) |  |
| $66,000 - $87,999 | 185,050 (24%) | 99,870 (24%) | 18,520 (21%) | 4,345 (22%) | 62,315 (26%) |  |
| $88,000 or more | 163,800 (21%) | 85,360 (20%) | 11,850 (13%) | 3,400 (17%) | 63,190 (26%) |  |
| Residential region |  |  |  |  |  | <0.001 |
| Large metro | 418,710 (54%) | 218,720 (51%) | 52,325 (58%) | 8,925 (44%) | 138,740 (56%) |  |
| Micropolitan | 136,490 (17%) | 81,110 (19%) | 12,945 (14%) | 4,330 (21%) | 38,105 (15%) |  |
| Small metro | 226,455 (29%) | 125,895 (30%) | 24,200 (27%) | 6,990 (35%) | 69,370 (28%) |  |
| Charleston comorbidity score | 5.07 (2.52) | 5.29 (2.58) | 5.13 (2.48) | 5.09 (2.50) | 4.68 (2.39) | <0.001 |
| Length of stay (days) | 6.7 (7.8) | 6.9 (7.5) | 7.6 (10.9) | 6.2 (6.7) | 6.0 (7.0) | <0.001 |
| Died during hospitalization | 33,880 (4.3%) | 20,300 (4.8%) | 3,160 (3.5%) | 1,820 (8.9%) | 8,600 (3.5%) | <0.001 |
| 1n (%); Mean (SD) | | | | | | |
| 2chi-squared test with Rao & Scott's second-order correction; Wilcoxon rank-sum test for complex survey samples | | | | | | |