

Referral Center 30-Day Mortality Rates After Major Cancer Surgery

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The goal of our proposal is to critically examine the impact of cancer treatment centralization at the population level. As part of this effort, we sought to estimate 30-day mortality following major surgery for cancer patients receiving care at regional referral cancer centers.

We used the Pennsylvania (PA) Cancer Registry linked to the PA Health Care Cost Containment Council database to identify major surgeries for cancer patients at 16 Commission on Cancer/National Cancer Institute-designated referral centers. We included adults with surgery in 2013-2020 for bladder, brain, breast, colorectal, esophageal, liver, lung, pancreatic, and prostate cancers. To estimate the adjusted 30-day mortality for each hospital, stratified by cancer type, we used Bayesian logistic regression with random effects for hospitals. We adjusted for age, sex, race, ethnicity, comorbidities, and pathologic T stage or tumor grade. For each hospital, we calculated a risk-adjusted, weighted average 30-day mortality across cancers using inverse-variance weights.

We identified 35,348 patients undergoing cancer surgery at the 16 referral centers in PA (breast and prostate cancers not yet included). The adjusted 30-day mortality rate ranged from 1.48% (0.66-2.30) in hospital A to 3.69% (2.08-5.31) in hospital P (**Figure**).

There was variation in adjusted 30-day mortality rates after major cancer surgery across the 16 referral centers in PA. The clinical significance of a 2% increase in 30-day mortality between hospitals is unclear. This is an important step in informing our hospital selection for the qualitative approach in our proposal.

Figure. Risk-adjusted, weighted average and 95% confidence intervals for the percentage of 30-day mortality following major surgery for cancer at Pennsylvania regional referral centers, 2013-2020.

