Does A Medical Consortium Influence Health Outcomes of Hospitalized Cancer Patients?

An Integrated Care Model in Shanxi, China

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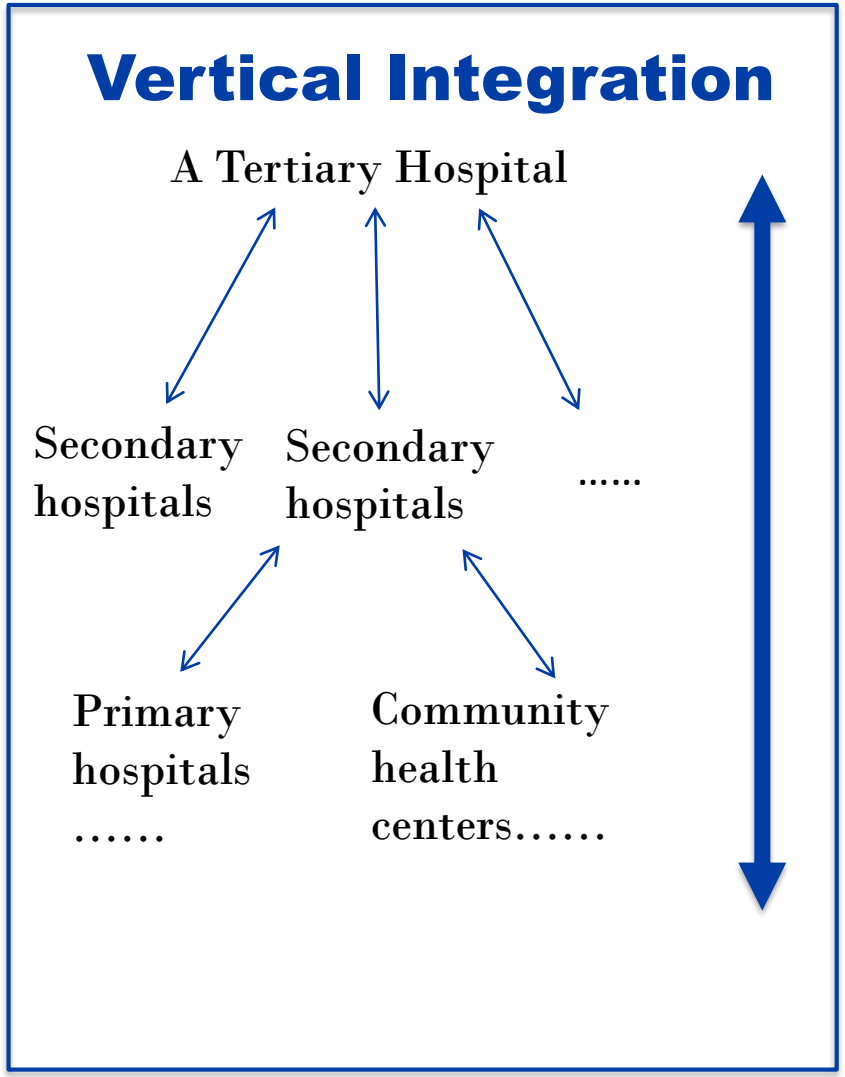
1. Background

- **A Medical Consortium** is a vertical integrated care that involves one widely recognized tertiary hospital and several secondary hospitals or community health centers.
- **Hypothesis**: The medical consortium policy has a significant positive effect on outcomes of cancer patients admitted to secondary hospitals in Shanxi, China.



2. Methods

- **Data**: Electronic medical records of lung cancer (n = 8193), stomach cancer (n = 5693) and esophagus cancer (n = 2802) patients hospitalized in secondary hospitals were used.
- **Sample matching**: Propensity scores were used to match each patient enrolled in medical consortium hospitals with a counterpart admitted in non-medical consortium hospitals.
- **Statistical models**: Cox proportional hazard models were used to estimate the hazard ratio of patients enrolled different categories of hospitals. Controlling variables include gender, age, comorbidities, urgency of disease, and surgery.
- **Test of Assumptions**: with the proportional hazards assumption evaluated by the Empirical Score Process with cumulative sums of martingale-based residuals

3. Plots

Figure 1. Product-Limit Survival Estimates of Matched Full Sample Patients

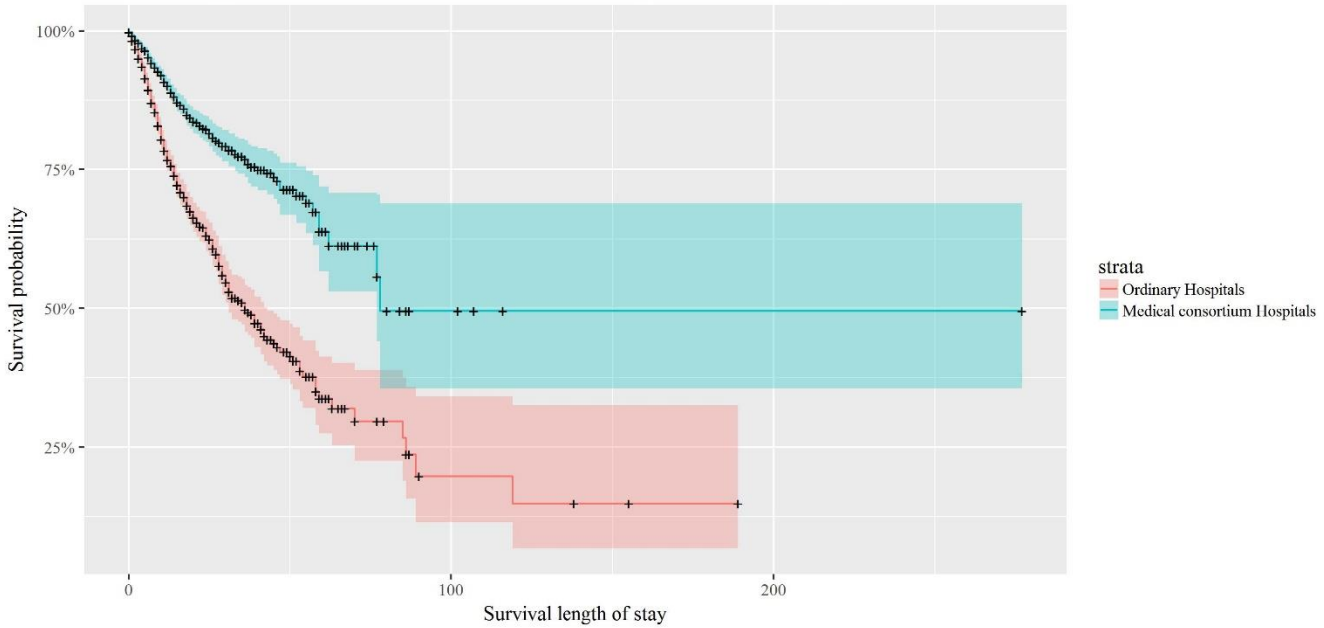
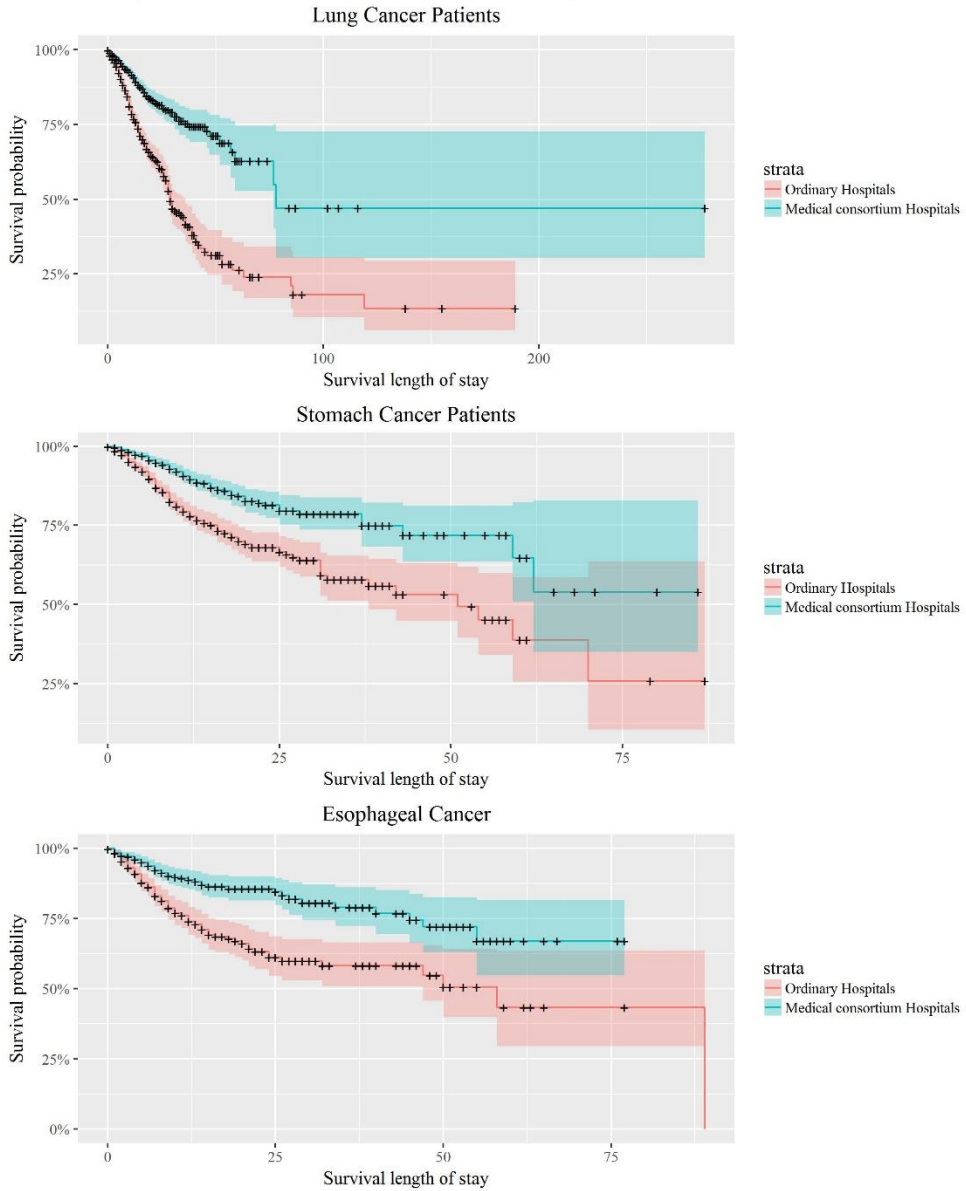


Figure 2. Product-Limit Survival Estimates of 3 Matched Cancer Patients



Note: strata = 0 denotes patients enrolled in non-Medical Consortium Hospitals, strata = 1 denotes patients enrolled in Medical Consortium Hospitals

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4. Results, conclusion, and implications

- **Results**: significantly lower hazard ratios were consistently associated with lung (hazard ratio (HR) = 0.405, $p < 0.001$), stomach (HR = 0.406, $p < 0.001$), and esophagus (HR= 0.439, $p < 0.001$) cancer patients in medical consortium hospitals, compared with those in non-medical consortium hospitals.
- **Conclusion**: The medical consortium provides an effective strategy to improve the outcomes of cancer patients in Shanxi, China.
- **Implications for policies**: Policy makers can learn from the positive outcomes of the medical consortium and improve the outcomes of cancer patients through the vertical integration of medical providers.