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Ranking Hospitals in Monmouth County, New Jersey Based on Number of People Within A Reasonable Driving Distance

MONMOUTH UNIVERSITY

SCHOLARSHIP WEEK

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Purpose:

- Hospitals are a critical lifeline in the event of a disaster
- Importance of hospitals can be ranked based on surrounding population
- The project ranks hospitals in Monmouth County based on population within a five-mile driving distance

Data Obtained for Maps:

- Road network from New Jersey Geographic Information Network
- Monmouth County tracts from United States Census Bureau
- Monmouth County hospitals from Department of Homeland Security

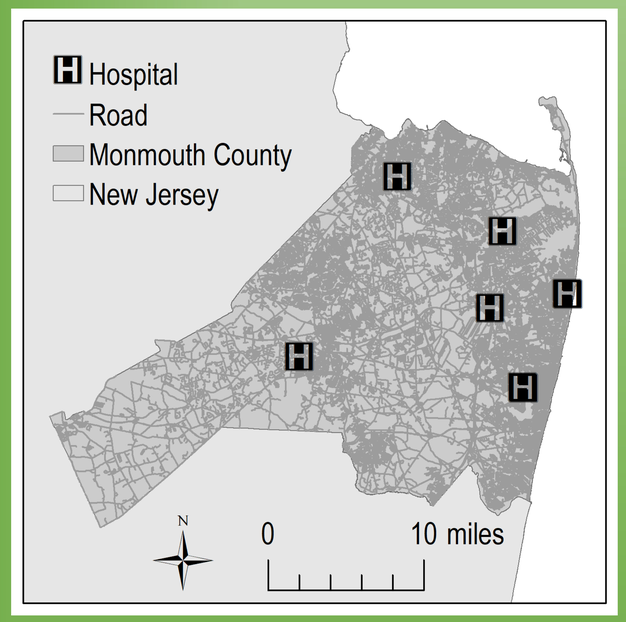

Figure 1: Map of Monmouth County road network surrounding Monmouth County hospitals.

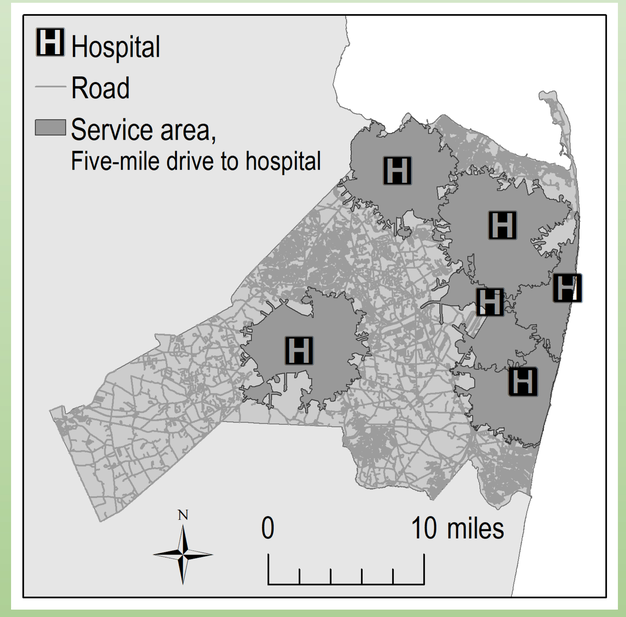

Figure 2: Map of service areas showing five-mile driving distance to Monmouth County hospitals.

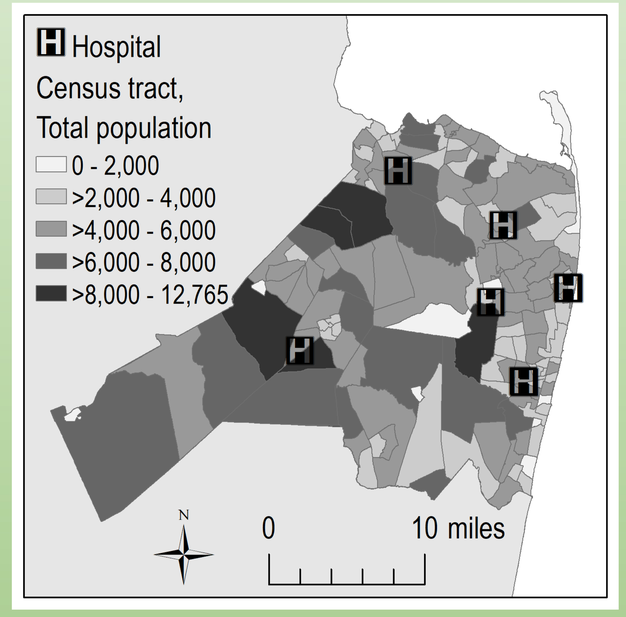

Figure 3: Map of census tract population surrounding Monmouth County hospitals.

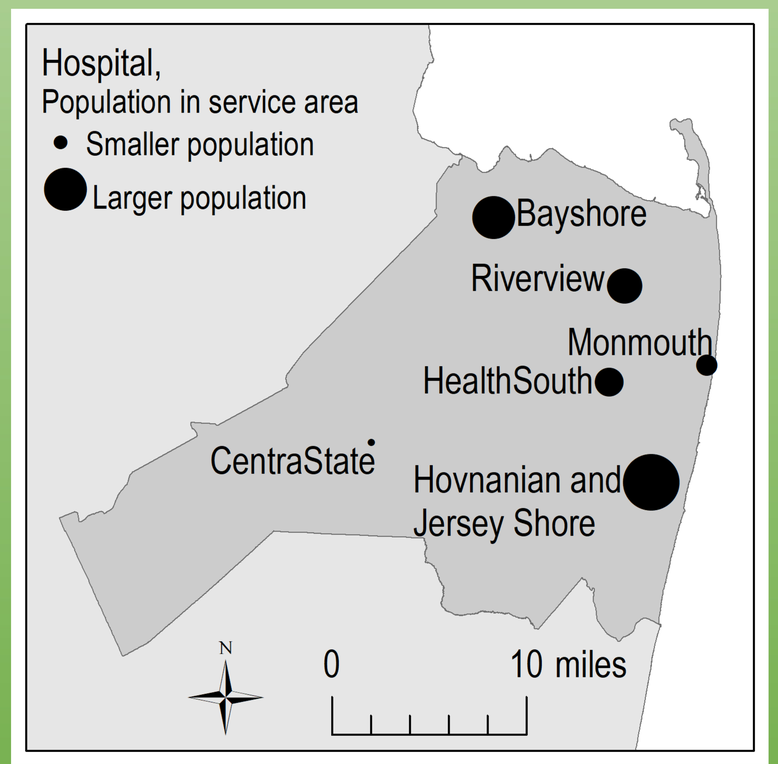

Figure 4: Map of population in hospital service areas, with larger points indicating a larger population.

Methods:

- Delineate service areas based on five-mile driving distance to hospitals (Figure 2)
- Estimate population in service area based on fraction of tract in service area
- Rank hospitals based on service area population

Rank	Hospital	Population
1	Hovnanian Children's Hospital	103,601
2	Jersey Shore Medical Center	102,612
3	Bayshore Community Hospital	89,260
4	Riverview Medical Center	82,960
5	HealthSouth Rehabilitation Hospital	80,410
6	Monmouth Medical Center	68,458
7	Specialty Hospital at Monmouth	67,784
8	CentraState Medical Center	51,591

Table 1: Ranking of hospital based on total population within a five-mile driving distance.

Outcomes:

- The most important hospital system surrounded by the most people is at the Hovnanian Children's Hospital and Jersey Shore Medical Center
- Hospitals in the north of the county (Bayshore and Riverview) are also important
- Hospitals surrounded by fewer people, like CentraState, may be used as overflow facilities in a large-scale emergency
- Future work should assess if critical hospitals are vulnerable to specific hazards, like a hurricane