Geospatial analysis of pharmacy functionality during the 2018 Hurricane Florence disaster

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BACKGROUND

- Hurricane Florence made landfall as a Category 1 storm near Wilmington, North Carolina on September 14, 2018
- Hurricane Florence caused significant damage in North and South Carolina
  - Rainfall totaled near 38 inches and damages totaled ~$22 billion in NC
  - Rainfall totaled near 24 inches and damages totaled ~$1.2 billion in SC
- During Hurricane Florence, community pharmacies were rendered nonfunctional
- To better understand the extent to which pharmacies were affected by Hurricane Florence, we examined the distribution of operational pharmacies before, during, and after the disaster

METHODS

- Study area: counties eligible for individual assistance under FEMA declarations DR-4393 and DR-4394
- Data source: Healthcare Ready
- Duration: September 12-20, 2018
  - Preparedness: Sept. 12-13
  - Response: Sept. 14-17
  - Recovery: Sept. 18-20
- Analysis: Operating pharmacy capacity (OPC) was computed, and GeoDa was utilized to calculate Getis-Ord Gi*(d) statistics

CONCLUSIONS

- Spatially, coastal counties in the Hurricane Florence-impacted area had the worst operating pharmacy capacity
- Temporally, disaster preparedness and recovery efforts of pharmacies in North Carolina and South Carolina were adequate, yet disaster response efforts were suboptimal
  - 71% of North Carolina counties (n = 24) and 88% of South Carolina counties (n = 7) increased operating pharmacy capacity or maintained high capacity of 90% or higher between September 13 and 14 in preparation for the landfall of Hurricane Florence
  - Operating pharmacy capacity was lowest during the disaster response period on September 16 at 71% for North Carolina and 62% for South Carolina
- Operating pharmacy capacity recovered one week after landfall during the disaster recovery period at 80% for North Carolina and 88% for South Carolina

RESULTS

Operating Pharmacy Capacity Before, During, and After Hurricane Florence in North Carolina and South Carolina Counties Eligible for Individual Assistance, September 12, 2018 – September 20, 2018

Clusters of Operating Pharmacy Capacity Before, During, and After Hurricane Florence in North Carolina and South Carolina Counties Eligible for Individual Assistance, September 12, 2018 – September 20, 2018