Neighborhood Health Center Enhanced Community Risk Assessment, Priority Hazard Matrix, and Emergency Operations Plan Recommendations

Neighborhood Health Center initiated this Healthcare MBA Capstone project to support the development of a coordinated and operationally integrated Emergency Management Plan (EMP) across its clinic network. Existing emergency preparedness policies and procedures were dispersed across departments and lacked a centralized framework for emergency response coordination. The purpose of this project was to develop an Enhanced Community Risk Assessment that translates regional hazards, vulnerable population data, and healthcare system access challenges into actionable Emergency Operations Plan (EOP) priorities for clinics, staff, and patients across the tri-county service area of Multnomah, Washington, and Clackamas counties.

The project used a primarily secondary research methodology informed by federal, state, county, and healthcare provider data sources. The final report was organized into four major analytical themes: (1) Regional Hazard Profile, (2) Vulnerable Population Analysis, (3) Healthcare Access Gap Assessment, and (4) Priority Hazard Matrix. Together, these components created a comprehensive assessment of risks affecting healthcare continuity, operational resilience, and equitable access to care during emergencies and disasters.

Regional Hazard Profile

The regional hazard profile identified a complex and evolving hazard landscape across the tri-county region shaped by both natural and technological threats. Analysis of historical emergency events, geographic risk patterns, and regional preparedness data identified several hazards as the most operationally significant risks to healthcare continuity within Neighborhood Health Center service areas. Priority hazards included extreme heat, wildfire smoke, flooding, infectious disease outbreaks, cybersecurity attacks, winter and ice storms, earthquakes, landslides, and power outages (Oregon Health Authority, 2025; Neighborhood Health Center, 2024).

The assessment found that hazard exposure and preparedness capacity varied across counties. Washington County demonstrated relatively strong emergency infrastructure but remained vulnerable to patient surge and throughput limitations. Clackamas County showed uneven healthcare response capacity across communities, while Multnomah County served as the regional trauma and referral hub but faced substantial congestion and system fragmentation during emergencies. These findings demonstrated that emergency healthcare access is influenced by both geographic location and operational healthcare capacity.

Vulnerable Population and Healthcare Access Analysis

The vulnerable population analysis examined how social vulnerability intersects with regional hazards to create disproportionate barriers to healthcare access and continuity of care. Using the CDC/ATSDR Social Vulnerability Index (SVI), the project evaluated how factors such as poverty, transportation limitations, housing instability, disability, chronic illness, language barriers, and limited healthcare access increase emergency-related risks for underserved populations (Centers for Disease Control and Prevention & Agency for Toxic Substances and Disease Registry, 2024).

The healthcare access gap assessment further evaluated whether patients within NHC service areas could reach, enter, and navigate healthcare systems during emergency events. Findings demonstrated that vulnerable populations are more likely to experience disruptions in continuity of care during disasters because of transportation barriers, limited surge capacity, fragmented referral systems, and dependence on already strained healthcare infrastructure. The report concluded that healthcare access during emergencies is both a geographic and operational challenge requiring coordinated emergency planning strategies.

Hazard Prioritization and Recommendations

The project utilized the American Society for Healthcare Engineering (ASHE) Hazard Vulnerability Analysis (HVA) framework to prioritize hazards based on likelihood, operational disruption, preparedness capacity, and potential impact on vulnerable populations (American Society for Healthcare Engineering, 2024). To better reflect the mission of Neighborhood Health Center, the assessment

incorporated a modified scoring criterion titled “Impact on Vulnerable Populations.” This modification ensured that emergency preparedness priorities accounted for disproportionate risks experienced by underserved communities.

Flooding, windstorms, and cyberattacks emerged as the highest-priority hazards based on the Hazard Vulnerability Analysis (HVA) criteria used in this assessment. Additional hazards identified as significant threats included earthquakes, landslides, extreme heat, wildfire smoke, and power outages because of their potential to affect healthcare operations, infrastructure, life safety, and access to care for vulnerable populations.

The report generated six primary recommendations to strengthen emergency preparedness and operational resilience across the organization. Recommendations included developing comprehensive response plans for priority hazards; establishing a centralized incident command structure with shared emergency data systems and patient registries; enhancing staff training and emergency preparedness drills; strengthening Continuity of Operations (COOP) planning by defining service level-tiers; improving surge capacity and operational redundancies; and embedding emergency preparedness into routine organizational planning and stakeholder engagement activities.

Conclusion

This capstone project provides a strategic framework for improving emergency preparedness, healthcare continuity, and organizational resilience across Neighborhood Health Center. By integrating hazard analysis, vulnerable population data, healthcare access assessments, and operational planning, the project demonstrates how community health organizations can strengthen equitable emergency response systems while addressing healthcare disparities and operational vulnerabilities. The recommendations developed through this assessment support both regulatory preparedness requirements and long-term organizational resilience planning for future emergencies and disasters.

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