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Medical Requirements in Support of Military Operations in a Megacity Environment

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Abstract: The focus of this research is to assess the interdependencies, requirements and resources in order to understand and plan the medical services needed to respond to the aftermath of a weapon of mass destruction (WMD) event in a megacity or dense urban environment. Historically, determining the planning factors to handle the medical requirements in the event of a WMD attack on a megacity has been difficult because of a lack of understanding and ability to quantify higher order effects. Megacities' dense populations and interconnectedness make contingency planning more difficult than rural, open areas. Megacities also serve as major economic centers and make up the epicenters of most of the world's gross domestic product. Systems diagramming, fuzzy cognitive mapping, and simulation and modeling are used to develop the medical need requirements of these megacities to support a WMD event. The simulation included two scenarios: a mature megacity and a rural dense urban environment. This research showed that the biggest capacity gaps are electricity, transportation, and food following the WMD event. These factors have the biggest effect on casualties in regard to the system.

Keywords: Megacity, Megacities, Systems Diagramming, Medical Resources, Weapon of Mass Destruction (WMD), Fuzzy Cognitive Mapping (FCM)