



# Hospital Surge Capacity Model

A free, Excel-based model developed by Northeastern University to estimate 1- to 30-day hospital demand for beds, ventilators, PPE, and staff during a surge event.

<https://www.ahrq.gov>

---

## Overview

---

The Hospital Surge Capacity Model is a free, downloadable tool developed by Northeastern University, adapting prior research supported by the Agency for Healthcare Research and Quality (AHRQ), the National Science Foundation, and the National Institutes of Health.

**Product Overview and Key Benefits** This model was created to help health systems and policymakers estimate and visualize 1- to 30-day ahead hospital-specific demand for critical resources during a public health emergency, such as a COVID-like epidemic. Its overall objective is to provide early signaling of capacity, supplies, and staffing concerns at the hospital and system levels to inform critical operational decisions. It blends theoretic and data-driven modeling methods to produce detailed, actionable decision support, integrating factors like current patient census and local new case predictions.

### Main Features and Capabilities

**1-30 Day Demand Forecasting:** Estimates resource needs on a rolling basis.

**Resource Demand Estimation:** Projects demand for medical and ICU beds, ventilators, Personal Protective Equipment (PPE), medications, and available staff.

**Scenario Modeling:** Helps answer questions like the daily number of ICU patients and when to convert routine space to ICU or isolation beds.

**Probabilistic Range:** Provides the probabilistic range of results over the next week and month, accounting for inherent variability (e.g., random lengths-of-stay).

**User-Friendly Format:** The model is implemented in Microsoft Excel for ease of use and sharing.

**Reporting:** Results are displayed graphically as run charts over time and tabularly, formatted for printing to facilitate clinical team communications.

### Target Users and Use Cases

**Target Users:** Hospital staff responsible for management, clinical teams, and policymakers.

**Use Cases:** Hospital surge planning, informing operational decisions, and expediting significant concerns regarding capacity and supplies during epidemics.

## Key Features

---

- 1-30 day demand forecasting
- ICU and medical bed demand estimation
- Ventilator and PPE consumption tracking
- Staff availability modeling
- Graphical and tabular results

## Pricing

---

**Model:** free

The tool is freely available to any health system worldwide.

**Target Company Size:** medium, enterprise

---

*This document was generated by IntuitionLabs.ai with the assistance of AI. While we strive for accuracy, please verify critical information independently.*