

Sg2 EXPERT INSIGHT

Sg2 Releases COVID-19 Surge Demand Calculator

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As cities coast to coast lock down to combat COVID-19, hospital executives are locked in on capacity implications. Lessons learned from the international community and those domestic locales hit first by this outbreak offer areas only now beginning to see cases rise enormous insight for refining their planning efforts.

Impact already varies widely across the country. Health care infrastructure in some cities is now under tremendous pressure; in others, a tipping point is still weeks away. Time is of the essence to inject data-driven planning for inpatient bed and ICU capacity to inform your surge response.

In most cases, a coordinated regional strategy will be imperative. Solid data and scenario planning enable teams to mobilize a local and regional response—better pull supply across the full range of assets in their market, determine the number of cases to decant, dedicate select hospitals to the COVID patient cohort and calculate how many cohorted ICU beds to add.

ADVANCED FUNCTIONS OFFER UNPARALLELED ACTIONABILITY

To enable this, Sg2 has released the **COVID-19 Surge Demand Calculator**. This scenario planning tool calculates market-specific, age-adjusted projections of non-ICU bed, ICU and ventilator demand, based on varying transmission rates observed internationally as initial disease spread, mitigation and containment strategies play out. The calculator incorporates infectious disease modeling specific to COVID-19 and has been vetted by hospital systems, Vizient biostatisticians, and epidemiologic and pandemic experts. Importantly, this tool also identifies where on the outbreak timeline hospitals are (eg, week 6 vs week 8), as well as where they are on the curve for hospital admission surge, based on their early hospitalization and ICU admission volumes for COVID-19.

In contrast, other tools available to project bed demand have more limited practical planning utility or do not incorporate the variable timing and strength of transmission spread based on COVID-19 infectious disease modeling. Worse yet, some may be modeling impact incorrectly. For instance, use of current hospitalization rates among positive cases to extrapolate for an entire population has resulted in faulty data that could hamstring efforts.

Sg2's model enables users to:

- Apply extreme, aggressive, moderate and mild scenarios of disease spread, adjusting infection rates to simulate the impact of COVID-19 transmission as well as this transmission when impacted by social distancing measures, testing and contact tracing, and other public health and policy initiatives
- Localize inputs to reflect service area demographics, applying age-adjusted admission rates
- Input bed, ICU and ventilator supply at the regional, market and organizational level for localized shortage/surplus evaluation
- Track capacity impact over time

Sg2 Expert Insight

Sg2's sophisticated model is grounded in robust data on age-adjusted hospitalization rates, actual average length of stay benchmarks for COVID-19 and SIR (Susceptible, Infected, Recovered) simulations of infectiousness. Those factors are highly variable not only across geographies, as we are presently seeing, but over time with external public health mitigation and containment efforts.

REAL-TIME DATA CRUCIAL FOR THE LONG GAME

That inside view positions teams to compare in real time available supply across their enterprise vs anticipated demand. Knowing more specifically when capacity will likely tighten, dip into a deficit and again ebb will be especially crucial given the extended time frame anticipated for this pandemic.

It also will power a high-speed response. Data from Italy's Lombardy region shows that in a market supplied with 720 ICU beds across 74 hospitals, an additional 482 ICU beds were created in 18 days—nearly 70% growth. The time is now to grasp how many your own region will need and when.

Time, for those who still have it, is a powerful tool as the industry grapples with this challenge. Models run by Sg2 already suggest creative solutions indeed can make even the initial wave manageable. Once through that surge, ongoing surveillance, and real-time planning and response, will be crucial.

ADDITIONAL DATA POINTS CONTINUOUSLY REFINE MODEL

Sg2's parent company Vizient Inc is closely tracking leading practices for managing surge as well as the rapidly changing landscape in antivirals and vaccine development. A combination will be needed to curb hospitalization rates and lengths of stay and ultimately break the back of the pandemic. That information will be incorporated into Sg2's model as it evolves, with regular updates ensuring system executives are well-equipped to sustain their efforts throughout later phases of the outbreak.

The calculator's output is not the final answer, but users should see it as a data point to incorporate into their broader planning process. They must also remain committed to updating their inputs and regularly running scenarios. As organizations pursue scenario planning and consider options for combatting bed shortages, Sg2 is prepared to help. Inputs and outputs for this tool are complex, and we have the resources to support careful use and results interpretation. Final prioritization and decisions, however, are solely the users'.

In addition, Vizient has developed a library of resources of leading practices and solutions to support hospitals during this pandemic that include managing surge bed capacity, testing protocols and care delivery best practices, ensuring adequate supplies of personal protective equipment and medications, and protecting the workforce.

“ I am excited that this tool is being launched to our members to help crucial planning. I look forward to continuing to refine the calculator with other Vizient data and resources to help our members provide the best care for patients. ”

—Dr David Levine, Group SVP Advanced Analytics and Product Strategy, Vizient

US health care is at its best when we bring our collective ingenuity to tackling any problem. As we face this unprecedented situation, Sg2 and Vizient are working round the clock to provide additional know-how to bolster those efforts. Please don't hesitate to reach out to us at MemberCenter@sg2.com.

Sg2, a Vizient company, is the health care industry's premier authority on health care trends, insights and market analytics.

Our analytics and expertise help hospitals and health systems achieve sustainable growth and ensure ongoing market relevance through the development of an effective System of CARE.