

STATE HOSPITAL WORKFORCE DEFICIT ESTIMATOR PROJECTS SHORTAGES IN NEXT 30 DAYS AS COVID-19 CASES SURGE

KEY FINDING

By **December 20, 43 states projected** to have hospital staffing shortages in one or more specialties between now and the end of the year as COVID-19 cases surge.

It is important to note that even when data do not reveal shortages, individual hospitals and subregions may be facing workforce strain or shortages due to existing other factors such as maldistribution within the state, and/or reluctance of health professionals to work full time given the work conditions and concerns about safety. The model currently presets attrition at zero. Users can adjust attrition levels to better account for known workforce reductions in their state.

[View Map](#)

Summary

The November 20 update of the Mullan Institute (MI) State Hospital Workforce Deficit Estimator using IHME's November 19 update finds that in the midst of the COVID-19 pandemic, a vast majority of states are at risk for shortages of healthcare workers to treat COVID-19 patients in the next 30 days. The workforce estimator developed by researchers at the George Washington University Milken Institute School of Public Health helps states and the federal government gauge the demand for health care professionals under different scenarios of COVID-19 cases and attrition. While recent reports on COVID have focused on ICU bed shortages, these risky shortfalls in healthcare workers can be much harder to solve. Solutions for the strain and shortages in the workforce include re-deploying health care workers from other settings to serve on the frontlines of the pandemic.

New Findings at a Glance

This week's update of the Estimator shows that:

- **36 states will face shortages in ICU doctors by Dec 20, 2020.** These shortages mean COVID-19 patients in 36 states will need more care than the ICU doctors can handle. An additional 8 states will have less than 50% intensivist capacity for non-COVID cases. These highly trained doctors can help provide potentially life-saving care to COVID-19 patients and others with serious illness or injuries.
- **23 states will face shortages in hospitalists.** These shortages mean COVID-19 patients in these 23 states will need more care than the hospitalists can handle. An additional 14 states are at risk of having less than 50% hospitalist capacity for non-COVID cases. These highly trained doctors can help provide potentially life-saving care to COVID-19 patients and others with serious illness or injuries.
- **21 states will face shortages in respiratory therapists.** These shortages mean COVID-19 patients in these 21 states will need more care than the respiratory therapists can handle. An additional 15 states are at risk of will have less than 50% respiratory therapist capacity for non-COVID cases. These highly trained professionals can help provide potentially life-saving care to COVID-19 patients and others with serious illness or injuries.
- **19 states will face shortages in pharmacists.** These shortages mean COVID-19 patients in these 19 states will need more care than the pharmacists can handle. An additional 17 states will have less than 50% pharmacist capacity for non-COVID cases. These highly trained professionals can help provide potentially life-saving care to COVID-19 patients and others with serious illness or injuries.
- **Three states will face shortages in critical care RNs.** These shortages mean COVID-19 patients in three states will need more care than the CCRNs can handle. An additional 17 states will have less than 50% critical care nurse capacity to care for non-COVID cases. These highly trained nurses can help provide potentially life-saving care to COVID-19 patients and others with serious illness or injuries. Even in states that appear to have an adequate supply of nurses, hospitals may face shortages as some nurses may not be working in inpatient settings or have drastically reduced hours or shifts. Users can adjust attrition levels to better account for known workforce reductions in their state. The model currently reflects no attrition.

Table 1. States at Risk for Insufficient Health Workforce for COVID-19 by Dec 20, 2020

| State | Predicted Peak Hospital Utilization | Intensivists | Critical Care Nurses | Hospitalists | Respiratory Therapists | Pharmacists |
|----------------|-------------------------------------|--------------|----------------------|--------------|------------------------|-------------|
| Alabama | 12/20/2020 | Shortage | | Shortage | Strain | Strain |
| Alaska | 12/20/2020 | Shortage | | | | |
| Arizona | 12/20/2020 | Shortage | | Shortage | Shortage | Shortage |
| Arkansas | 11/20/2020 | Shortage | | Strain | | Strain |
| California | 12/20/2020 | Strain | | Strain | | |
| Colorado | 12/20/2020 | Shortage | Strain | Shortage | Shortage | Shortage |
| Connecticut | 12/20/2020 | Shortage | Strain | Strain | Shortage | Shortage |
| Delaware | 12/20/2020 | Strain | | | | |
| Florida | 12/20/2020 | Strain | | | | |
| Georgia | 12/20/2020 | Shortage | Strain | Shortage | Shortage | Shortage |
| Idaho | 12/20/2020 | Shortage | | Strain | Strain | Strain |
| Illinois | 12/8/2020 | Shortage | Strain | Shortage | Shortage | Shortage |
| Indiana | 12/7/2020 | Shortage | | Shortage | Strain | Strain |
| Iowa | 12/7/2020 | Shortage | Strain | Shortage | Shortage | Shortage |
| Kansas | 12/20/2020 | Shortage | | Strain | Strain | Strain |
| Kentucky | 12/20/2020 | Shortage | Strain | Shortage | Shortage | Shortage |
| Louisiana | 12/10/2020 | Shortage | | Shortage | Strain | Shortage |
| Maryland | 12/20/2020 | Shortage | | Shortage | Shortage | Strain |
| Michigan | 12/7/2020 | Shortage | Strain | Shortage | Shortage | Shortage |
| Minnesota | 12/6/2020 | Shortage | Shortage | Strain | Shortage | Strain |
| Mississippi | 12/19/2020 | Shortage | | Shortage | Strain | Strain |
| Missouri | 12/15/2020 | Shortage | Strain | Shortage | Shortage | Shortage |
| Montana | 11/20/2020 | Shortage | | | Strain | |
| Nebraska | 12/10/2020 | Shortage | Shortage | Shortage | Shortage | Shortage |
| Nevada | 12/20/2020 | Shortage | Strain | Shortage | Shortage | Shortage |
| New Jersey | 12/20/2020 | Shortage | Strain | Shortage | Shortage | Shortage |
| New Mexico | 12/20/2020 | Shortage | | Strain | Strain | Strain |
| New York | 12/20/2020 | Strain | | Strain | Strain | Strain |
| North Carolina | 12/20/2020 | Strain | | | Strain | |
| North Dakota | 12/3/2020 | Shortage | Strain | Strain | Strain | Strain |

| | | | | | | |
|----------------|------------|----------|----------|----------|----------|----------|
| Ohio | 12/20/2020 | Shortage | Strain | Shortage | Shortage | Shortage |
| Oklahoma | 12/20/2020 | Shortage | Shortage | Shortage | Shortage | Shortage |
| Pennsylvania | 12/20/2020 | Shortage | | Shortage | Shortage | Shortage |
| Rhode Island | 12/16/2020 | Strain | | Shortage | Shortage | Shortage |
| South Carolina | 12/20/2020 | Strain | | | | |
| South Dakota | 12/4/2020 | Shortage | Strain | Shortage | Shortage | Strain |
| Tennessee | 12/10/2020 | Shortage | | Strain | Strain | Strain |
| Texas | 12/20/2020 | Shortage | Strain | Shortage | Shortage | Shortage |
| Utah | 12/20/2020 | Shortage | | Strain | Strain | Strain |
| Virginia | 12/20/2020 | Shortage | | Shortage | Strain | Strain |
| Washington | 12/20/2020 | Strain | | | | |
| West Virginia | 12/20/2020 | Shortage | Strain | Strain | | Strain |
| Wisconsin | 12/7/2020 | Shortage | Strain | Strain | Shortage | Strain |
| Wyoming | 12/5/2020 | Shortage | Strain | Strain | Strain | Shortage |

Shortage: More than 100% of the states' workforce needed to treat COVID-19 patients

Strain: Less than 50% workforce remaining for non-COVID patients after COVID-19 demand is met

Why does it Matter?

The [news media has largely focused on hospitalizations](#) and the danger [of depleting the ICU bed supply](#), but staffing these beds may be an even greater problem. New beds can be set up in other hospital units, or even outside the hospital setting, but it takes time to find highly specialized ICU professionals. Moreover, existing staff in these high COVID setting are likely to be working more shifts and with more intensity, leading to burn out and even infections among health personnel.

The MI State Hospital Workforce Deficit Estimator allows states to adjust the attrition rates and anticipate predicted workforce shortages. The site also provides resources on emergency measures that can be used to quickly to attract additional professionals, including inactive clinicians in their state and clinicians from other states.

[View Map](#)

* In addition to the limitations inherent in any projection model, and the [limitations of the IHME model](#) specifically, the data we used for the health professions supply side also has limitations. First, all data is at the state level, and there are variations in distribution within states that are important. Second, the data on intensivists and physician hospitalists are the only data that takes into account evidence of practice, i.e., claims data. The other four professions are based on estimates from BLS, AHA and NSSRNs. The advantage of claims data is that, since there is not

always an exact match between specialty education and actual practice area, we can see who is actually providing the set of services that are of interest. Third, hospital work for all these professions is based on shifts, and, over the course of a given period, individuals often alter the number of shifts they work based on other factors in their lives, including the need for income and home responsibilities. Our estimates assume full time work. Lastly, it is worth recalling that the nursing data is based on a national sample survey, making estimates of nursing supply the least reliable of the five professions.

Background

The purpose of the MI State Hospital Workforce Deficit Estimator is to help state and federal policy leaders assess the sufficiency of their health workforce to meet COVID-19 cases in hospitals. The Estimator currently provides estimates for:

- **Intensivists** – physicians trained and experienced in providing ICU care
- **Critical Care Nurses (CCRN)s** – nurses trained and experience in providing ICU care
- **Hospitalists** – physicians who focus on the medical care of hospitalized patients in non-ICU settings
- **Respiratory Therapists (RTs)** – health professionals trained to assess and treat patients with pulmonary disease, including the management of ventilators
- **Pharmacists** – health professionals with expertise in medication who ensure that medicines are dispensed safely and accurately.

The Estimator allows users to switch between two staffing models – non-surge and surge. In order to meet increasing health workforce needs, one of the first steps health care organizations might take is to transition to surge capacity staffing levels, i.e., requiring providers to care for more patients than usual. For example, in our models, intensivists at surge staffing would care for a panel of 10 patients rather than 7 patients at non-surge staffing levels (Table 2). However, surge staffing levels pose greater risk of provider burnout if used for an extended period.

Table 2. Non-Surge and Surge Staffing Capacities

| | Acute Care Teams | | ICU Teams | |
|------------------------------|------------------------|---------------------|------------------------|---------------------|
| | Baseline Patients Each | Surge Patients Each | Baseline Patients Each | Surge Patients Each |
| Intensivists | N/A | N/A | 7 | 10 |
| Critical Care Nurses (CCRN)s | N/A | N/A | 1 | 3 |
| Hospitalists | 10 | 18 | N/A | N/A |

| | | | | |
|------------------------------|---|----|---|----|
| Respiratory Therapists (RTs) | 8 | 12 | 4 | 6 |
| Pharmacists | 8 | 30 | 8 | 30 |

Source: Healthforce Center at UCSF. [Staffing plans for surge hospitals – public Apr 7 update](#)

The Estimator also allows for adjustment based on different health workforce attrition rates. Attrition might be due to infection, quarantine, or loss due to childcare or other family demands. [Health workforce attrition estimates](#) for COVID-19 have ranged from 7.5% in Washington to 34.5% in New York.

Methods

The MI State Health Workforce Deficit Estimator for COVID-19 uses the IHME COVID-19 demand model, American Hospital Association 2018 Hospital Survey data, publicly available CMS data (NPPES, PECOS, and Medicare Part B PUF), Bureau of Labor Statistics Occupational Employment Statistics, and the 2018 National Sample Survey of Registered Nurses data to examine the sufficiency of the health workforce to meet projected COVID-19 hospital and ICU bed demand across states. View additional information on each health worker type in the [methodology](#).

For our estimations, the date with the highest demand over the next 30 days is classified as the peak date for each state. Additionally, IHME presents three scenarios: (1) Current Projections; (2) Mandates Easing; and (3) Universal Masks. We use the Current Projections scenario for our estimations.

Planning for COVID-19 Health Workforce Needs

Even for states with sufficient health workforce for COVID-19 patients, states will have varying degrees of capacity to meet ongoing non-COVID-19 patient needs. Hospitals could further face challenges due to health worker attrition, and hospitals resuming full service with potential pent-up demand may increase overall health workforce needs over time.

A first point to consider is that the Bureau of Labor Statistics and NSSRN data estimate there are 21,000 additional advanced practice nurses working in critical care settings and 93,000 working in inpatient settings. The [NCCPA reported](#) 1,502 physician assistants specialized in critical care medicine and 3,436 were hospitalists in 2018. These practitioners are an important resource to consider. Because of data uncertainty, these professions were not included in the Estimator, but they are important resources that policymakers and planners should consider in their efforts to meet the demand for COVID-19 care.

For states that have already implemented surge capacity staffing ratios, for a short period, more aggressive staffing ratios are possible. The Society of Critical Care Medicine provides a [Tiered](#)

[Staffing Strategy for Pandemic](#), augmenting experienced intensivists, respiratory therapists, and ICU nurses with non-ICU health workers. Shifting to surge capacity and tiered staffing models requires advance planning, with training and support for health workers. Additionally, surge staffing ratios may be unsustainable over longer periods of time.

Another strategy healthcare organizations and states are pursuing is re-deploying or recruiting health workers from other settings. While the Estimator predicts shortages based on the active adult intensivist and hospitalist workforce, for each state, it also identifies the number of intensivists and hospitalists active in non-ICU or non-hospital settings (respectively) or no longer active (e.g. retired), and primary care physicians billing a large portion of their Medicare services (50-90%) in the inpatient setting. These are individuals that might be identified and re-deployed to support COVID-19 needs.

State-by-state modeling can further inform federal and state planning. The military has an estimated [medical workforce of 180,000](#), including respiratory therapists. Understanding which states face the greatest predicted shortfalls can help the federal government plan and deploy to meet national needs. Understanding their own health workforce capacity can also help states target their efforts and support the release of health workers to other states with greater need, such as when [NYC critical care docs recently went to Utah to return the favor](#).

Understanding health workforce needs for COVID-19 can help states prepare to meet these needs. However, it should be noted that the state modeling does not consider the distribution of the health workforce across the state and in different health care organizations. Health workers do not move easily – planning and extensive negotiated coordination is needed. That is why it is important to have data for conversations about health workforce needs early in the process.

For additional [Emerging Health Workforce Strategies to Address COVID-19, click here](#).