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

- **Intensivists** – physicians trained and experienced in providing ICU care
- **Critical Care Nurses (CCRN)s** – nurses trained and experienced 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 Deficit Estimator provides two staffing models – non-surge and surge. To meet increasing health workforce needs, one of the first steps health care organizations might take, is to transition to surge capacity staffing levels. For example, in our models, intensivists at surge staffing would care for a panel of 10 patients rather than seven patients at non-surge staffing levels (Table 1).

### Table 1. Non-Surge and Surge Staffing Capacities

<table>
<thead>
<tr>
<th></th>
<th>Acute Care Teams</th>
<th></th>
<th>ICU Teams</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline Patients Each</td>
<td>Surge Patients Each</td>
<td>Baseline Patients Each</td>
<td>Surge Patients Each</td>
</tr>
<tr>
<td><strong>Intensivists</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td><strong>Critical Care Nurses (CCRN)s</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Hospitalists</strong></td>
<td>10</td>
<td>18</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Respiratory Therapists (RTs)</strong></td>
<td>8</td>
<td>12</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td><strong>Pharmacists</strong></td>
<td>8</td>
<td>30</td>
<td>8</td>
<td>30</td>
</tr>
</tbody>
</table>

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

The Deficit 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


For our estimations, the date with the highest demand in the remaining period of IHME’s projections (7/15/2020 through 11/1/2020), 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.

NOTE: IHME does not include New Hampshire in its 7/14/2020 projections.

State Hospital Workforce Deficit Estimates

Updated Deficit Estimator models, based on IHME July 14 updates, show several states remain at high risk for insufficient intensivists, critical care nurses, hospitalists, respiratory therapists, or pharmacists to meet COVID-19 demands.

States with a sufficient health workforce to meet COVID-19 demand may still have insufficient health workers remaining to meet non-COVID-19 needs (Table 2).

View Map

Table 2. States at Risk for Insufficient Health Workforce for COVID-19

<table>
<thead>
<tr>
<th>IHME Model Date:</th>
<th>States at Risk for Insufficient Health Workers for COVID-19</th>
<th>Additional States with 50% or less of Health Workers Remaining for Non-COVID (Mean COVID-19 Demand, Non-Surge Staffing, No Attrition)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IHME Model Date:</td>
<td>July 7, 2020</td>
<td>July 14, 2020</td>
</tr>
<tr>
<td>Intensivists</td>
<td>AL, AZ, FL, MS, SC, TX, VA (7)</td>
<td>ID, MS, MT, NV, SC, TX, UT (7)</td>
</tr>
<tr>
<td>Critical Care Nurses (CCRN)</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>
Peak Dates for At-Risk States (States with Insufficient Workers for COVID-19 or with Less than 50% Workers for Non-COVID)

1. AL: 7/20/2020
2. AZ: 7/16/2020
3. FL: 11/1/2020
4. ID: 11/1/2020
5. LA: 7/25/2020
6. MS: 8/2/2020
7. MT: 9/27/2020
8. NV: 9/11/2020
9. ND: 10/21/2020
10. SC: 10/5/2020
11. TX: 8/25/2020
12. UT: 11/1/2020
13. VA: 11/1/2020
14. WA: 11/1/2020

Planning for COVID-19 Health Workforce Needs

The purpose of the State Health Workforce Deficit Estimator is to help state and federal policy leaders prepare for potential health workforce shortages. The Deficit Estimator provides two staffing models – non-surge and surge staffing. States may need to pursue more aggressive staffing ratios, even if they already implemented surge capacity staffing ratios. 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 advanced planning, with training and support for health workers. Surge staffing ratios may also be unsustainable over long periods of time.

It should be noted that even for states with a sufficient health workforce for COVID-19, 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.

An important note on the Deficit Estimator is that it does not consider team-based configurations that utilize nurse practitioners and physician assistants. Bureau of Labor Statistics and NSSRN
data indicate an estimated 21,000 additional advanced practice nurses may be working in critical care settings, and 93,000 may be 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 essential resource to consider.

Another strategy healthcare organizations and states are pursuing is re-deploying or recruiting health workers from other settings. While the Deficit Estimator focuses on the active adult intensivist and hospitalist workforce, 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 most significant shortfalls can help the federal government plan and deploy to meet national needs. Understanding their health workforce capacity can also help states target their efforts and support the release of health workers to other states with greater need, following California’s recent example of sending 500 ventilators back to the national stockpile.

Understanding the health workforce needs for COVID-19 can help states prepare to meet their needs. However, it should be noted that 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 are needed. That is why it is crucial to have data for conversations about health workforce needs early in the process.

For additional Emerging Health Workforce Strategies to Address COVID-19.