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MIEMSS Facility Resources Emergency Database (FRED) Hospital Capacity Dashboard User Guide

By CRISP, last updated 5/14/2020



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MIEMSS Facility Resource Emergency Database (FRED) Hospital Capacity Dashboard

Background

The MIEMSS Facility Resources Emergency Database (FRED) Hospital Capacity Dashboard shows key hospital capacity metrics, such as ICU and acute care bed availability, ventilator availability, and hospitalized COVID-19 patients. In addition, trending views allows users to view bed availability and ventilator availability over time to understand surge capacity needs.

Data Source

This report is based on survey data developed and collect by Maryland Institute for EMS Systems (MIEMSS) through the Facility Resources Emergency Database (FRED). These data are self-reported by hospitals daily to MIEMSS and reflect point in time counts. Point in time counts are typically collected between 11 am and 1 pm. Data are presented as reported. CRISP does not edit or validate the values.

Note: Hospitals identifying errors in the data submission (e.g., keystroke error, misinterpretation of data elements) should contact MIEMSS.



Measures

MIEMSS developed the following FRED data measures and definitions.

Measure	Definition
Physical Beds	Beds that are physically set up. These beds may or may not be staffed, may or may not be occupied, and may or may not have supplies and resources. This includes any traditional and non-traditional beds. These beds are broken out by adult ICU, adult acute care, pediatric ICU, and pediatric acute care.
Staffed Beds	Beds that are physically available for which staff is on hand to attend to the patient who occupies the bed and you would be able to admit a patient into immediately. Staffed beds include those that are occupied and those that are vacant. This includes any traditional and non-traditional beds. These beds are broken out by adult ICU, adult acute care, pediatric ICU, and pediatric acute care.
Occupied Beds	Beds that are physically available, staffed, and occupied by a patient. This is also known as the "Census." This includes any traditional and non-traditional beds. These beds are broken out by adult ICU, adult acute care, pediatric ICU, and pediatric acute care.
Number of Beds Occupied by Confirmed COVID-19 Patient	Subset of acute care or ICU beds that are occupied by a confirmed COVID-19 patient. These patients are not in addition to those included in the occupied bed count.
% Occupied Physical Bed	Number of occupied beds/ number of physical beds
% Occupied Staffed Bed	Number of occupied beds/ number of staffed beds
Number of Ventilators in Use	Total number of ventilators in use
Number of Ventilators Available	Total number of ventilators available including all patient units, central stores, and emergency stocks that are readily available. Note: The number of ventilators available and number of ventilators in use should equal the <u>total</u> equipment count of ventilators.
Total Number of Patients in the ED	Total number of patients physically in the Emergency Department as of the time of reporting. This number includes those in hallway spaces, waiting room, and any other patient care spaces under the auspice of the Emergency Department.



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User Guide

Tableau Public Health Dashboard Access/Card

Step 1. To access the Public Health Dashboard tile, login to the CRISP Reporting Services Portal by visiting <https://reports.crisphealth.org>. Once in the CRS Portal, a dashboard of different blue report “cards” will appear. Availability of reports is based on the access of the user. Clicking the card named “Public Health Dashboard” will bring up the available reports for this category. The following screen shots represent the user’s workflow.





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Step 2. By clicking the Tableau icon as shown below, you will access the MIEMSS FRED – Hospitals Capacity Dashboard. The question mark icon will allow you to access documentation such as user guides and data dictionaries where applicable.

Public Health Dashboard

Available Reports

- Confirmed COVID-19 Cases
- Hospital Volume Trend
- MIEMSS Facility Resources Emergency Database - FRED - Hospital Capacity Dashboard**
- Volume of COVID-19 Lab Results
- Public Health Dashboards

Tableau Reports | Static Reports | Archive | Documentation

Tableau Features

On each Tableau dashboard, there are menu options for the user to select, which are listed below. Additionally, the Tableau report contains multiple dashboards. The available dashboards are listed at the top.

Refresh | Revert | Pause | Print

Landing Page-1 | Occupied beds-2 | Regional View-3 | Map View-4 | COVID-19 Beds-5 | Vents-6 | ED-7

Menu Option	Description
Refresh	The refresh button is used to refresh the data source used by the Tableau report.
Revert	The revert button restores the report to its default view, undoing all user selections and/or filtering.



Pause/Resume	This button pauses or resumes the Tableau layout update. This is useful when the user is making multiple filter changes at once. By pausing the layout update, the report is not reloaded for each filter change. When the user clicks to resume the layout update, the report will be reloaded with the filter selections applied.
Help	This button opens the Tableau user guide.
Print	This button allows you generate a PDF from the selected tabs in Tableau. When you click the icon, a menu with various export options appear. The user can print multiple tabs and with the desired filters, and the user has options to adjust the page scaling, paper size, and paper orientation for printing.
Excel/Crosstab	The Excel or crosstab option allows user to export a dataset into an Excel workbook or CSV file. Note that Excel extracts may provide additional columns that may not be present in the Tableau workbook. You will have to separately download a new file if you want the data tables with different filter selections.

Tableau Filters

Users can select filters in the report to focus the analysis on specific areas and populations.

Filter	Description
Physical or Staffed Beds	Allows user to select between staffed beds and physical beds.
Care Setting	Allows user to choose between adult acute care, adult ICU, pediatric acute care, and pediatric ICU. Please note, not all hospitals have pediatric acute care nor pediatric ICU.
Region	MIEMSS Regions: Region 1- Garrett & Allegany Counties Region 2- Washington and Frederick- Western Region 3- Baltimore City, Anne Arundel, Baltimore, Carroll, Harford, Howard counties Region 4- Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, Worcester Region 5- Calvert, Charles, Montgomery, Prince George's, St. Mary's Counties



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Report Sections

1. [Landing Page](#)
2. [Occupied Beds](#)
- 2b. Available ICU Beds
3. [Regional View](#)
4. [Map View](#)
5. [COVID-19 Beds](#)
6. [Vents](#)
7. [ED](#)
8. [MIEMSS FRED Survey](#)



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1. Landing Page

The landing page provides users with an at-a-glance view of key measures to help understand current counts and comparisons with the previous day's data. The landing page is broken into four sections.

Statewide Capacity Overview

The statewide capacity overview shows the number of available staffed adult beds (acute care and ICU combined), the number of ventilators available, and the number of patients in the emergency department. Change from day before is shown, with green indicating availability increasing and red indicating availability decreasing. We base these figures on point in time counts reported by the hospitals. For example, the number of patients in the emergency department reflects the number of patients in the emergency department at the time of reporting, not the total daily emergency department volume.

Statewide Capacity Overview		
Available Acute Care and ICU Staffed Beds (Adult):	Ventilators Available:	Patients in the Emergency Department:
1,924	1,184	599
(1924/6667) = 29%	(1184/1765) = 67%	(599/4362) = 14%
Change from day before: -142 beds	Change from day before: +45 vents	Change from day before: +11 patients

Hospitalized Confirmed COVID-19 Patients

This section shows the total number of confirmed COVID-19 patients in acute care beds and ICU beds. The percentage below represents the percentage of staffed adult ICU or acute care beds occupied by COVID-19 patients. More detailed information on COVID-19 patients can be found on the tab, 'COVID-19 Beds-5'.

Hospitalized Confirmed COVID-19 Patients	
Staffed Acute Care Beds Occupied by COVID-19 Patients:	Staffed ICU Beds Occupied by COVID-19 Patients:
539	309
(539/5538) = 10%	(309/1129) = 27%
Change from day before: 40 patients	Change from day before: +7 patients



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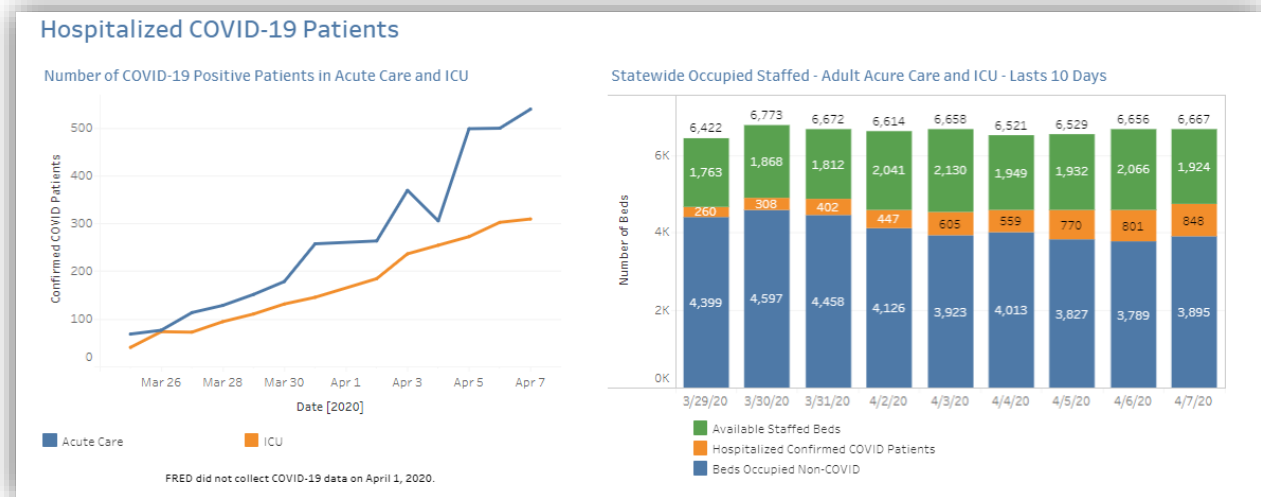
Bed Summary

This section provides statewide point in time counts for the total number of physical, staffed, and occupied beds statewide broken out by bed type. More details on bed occupancy are available in 'Occupied Beds-2'.

	Physical Beds	Staffed Beds	Occupied Beds	% Occupied Physical Bed	% Occupied Staffed Bed
Adult Acute Care	7,063	5,538	3,856	55%	70%
Adult ICU	1,410	1,129	887	63%	79%
Pediatric Acute Care	342	277	97	28%	35%
Pediatric ICU	106	106	77	73%	73%

Hospitalized COVID-19 Patients

The graph on the left shows the trend in the number of hospitalized COVID-19 patients by bed type. The chart on the right shows the number of staffed beds occupied by COVID-19 patients when summing acute care and ICU beds. This data can be viewed in more detail in the tab, 'Occupied Beds-2'. Please note, FRED did not collect number of COVID-19 patients on 4/1.



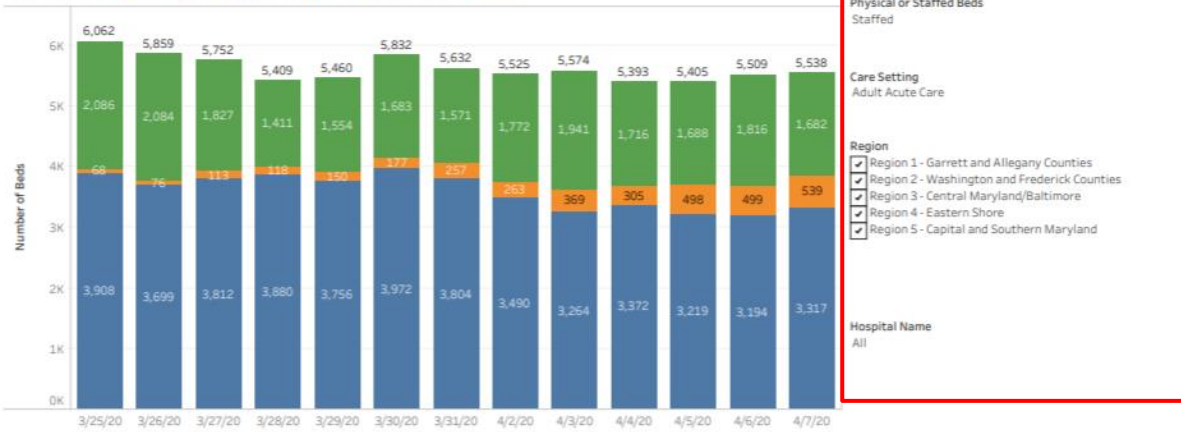


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2. Occupied Beds

The occupied beds tab shows the trend of the number of occupied beds by COVID-19 patients over time. It also allows users to see the total number of physical and staffed beds available statewide. The filters on the right allow users to toggle between staffed beds and physical beds, as well as acute care and ICU beds. Additionally, there is a filter by hospital to drill down to the hospital or health system level. The bottom dashboard shows occupied and available beds by hospital over time.

Statewide Occupied Staffed - Adult Acute Care



Occupied Staffed by Hospital - Adult Acute Care





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2b. Available ICU Beds

The available ICU beds tab displays the number of available adult ICU beds by hospital. This allows users to see the number of available ICU Beds by date and how it trends overtime. Users can filter on region and hospital. The most recent date of data is shaded based on the number of available ICU beds. The red represents few available beds and green indicates many available beds.

Available Adult ICU Beds by Hospital as of 5/5/2020

Hospital Name	April					May				
	26	27	28	29	30	1	2	3	4	5
Anne Arundel Medical Center	1	-3	-5	-3	1	1	1	4	0	4
Atlantic General Hospital	6	4	3	4	4	4	6	6	6	3
Baltimore Convention Centre	0	0	0	0	0	0	0	0	0	0
Baltimore Washington Medical Center	-6	8	7	4	4	0	-4	-2	1	0
Bowie Medical Center	0	0	0	0	0	0	0	0	0	0
Calvert Memorial Hospital	1	2	2	1	3	4	2	3	3	2
Carroll Hospital Center	2	2	-3	-1	-3	0	-3	-1	4	1
Charles Regional (UM)	0	2	3	5	4	5	0	5	5	5
Chestertown (UMSRH)	1	1	0	0	0	0	0	0	0	0
Doctors Community Hospital	0	0	0	0	0	0	0	0	0	0
Dorchester (UMSRH)	0	0	0	0	0	0	0	0	0	0
Easton (UMSRH)	0	0	1	0	2	1	0	1	1	1
Edward McCready Memorial Hospital	0	0	0	0	0	0	0	0	0	0
Fort Washington Hospital	0	0	0	0	1	0	0	0	0	1
Franklin Square (MedStar)	3	12	16	13	12	12	9	18	14	11
Frederick Memorial Hospital	16	13	19	16	16	15	15	15	15	9
Garrett Memorial Hospital (..)	3	3	2	2	2	2	2	3	2	1
Germantown EC	0	0	0	0	0	0	0	0	0	0
Good Samaritan Hospital (..)	10	10	12	9	7	6	6	4	6	12

Region


- (All)
- Region 1 - Garrett and Allegany Cou...
- Region 2 - Washington and Frederic...
- Region 3 - Central Maryland/Baltim...
- Region 4 - Eastern Shore
- Region 5 - Capital and Southern Mar...

Cancel Apply

Hospital Name

(All)

Available Beds

0  43



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2c. Surge Capacity

The Surge Capacity tab displays acute and ICU bed surge capacity by hospital. This enables users to view a breakdown of ICU and acute beds data to better understand a hospital's surge capacity. Users can filter on region and hospital name. The surge capacity data is provided by Maryland Department of Health. These numbers are constant.

Acute Care Surge Beds

	Occupied Beds	Staffed Beds	Physical Beds	Peak Surge Acute Care Beds	Incremental Acute Beds with Tents	Total Acute Beds at Peak Surge
Statewide	5,084	6,294	7,805	9,585	479	10,064
Anne Arundel Medical Center	269	280	326	468	79	547
Atlantic General Hospital	30	66	82	83	0	83
Baltimore Convention Center Field Hos..	14	30	252			0
Baltimore Washington Medical Center	194	196	249	405	0	405
Bowie Medical Center	4	12	20			0
Calvert Memorial Hospital	45	55	68	82	0	82
Carroll Hospital Center	95	108	147	208	7	215
Charles Regional (UM)	64	94	96	162	7	169
Chestertown (UMSRH)	8	15	23	43	7	50
Doctors Community Hospital	137	187	187	248	20	268
Dorchester (UMSRH)	5	9	18	68	7	75
Easton (UMSRH)	45	62	121	102	7	109
Edward McCready Memorial Hospital	0	0	0	0	0	0
Fort Washington Hospital	11	11	43	33	20	53
Franklin Square (MedStar)	190	240	259	382	7	389
Frederick Memorial Hospital	133	200	265	265	7	272

Region

(All)

Region 1 - Garrett and Allegany Cou...

Region 2 - Washington and Frederic...

Region 3 - Central Maryland/Baltim...

Region 4 - Eastern Shore

Region 5 - Capital and Southern Mar...

Cancel Apply

Hospital Name

(All)

ICU Surge Beds

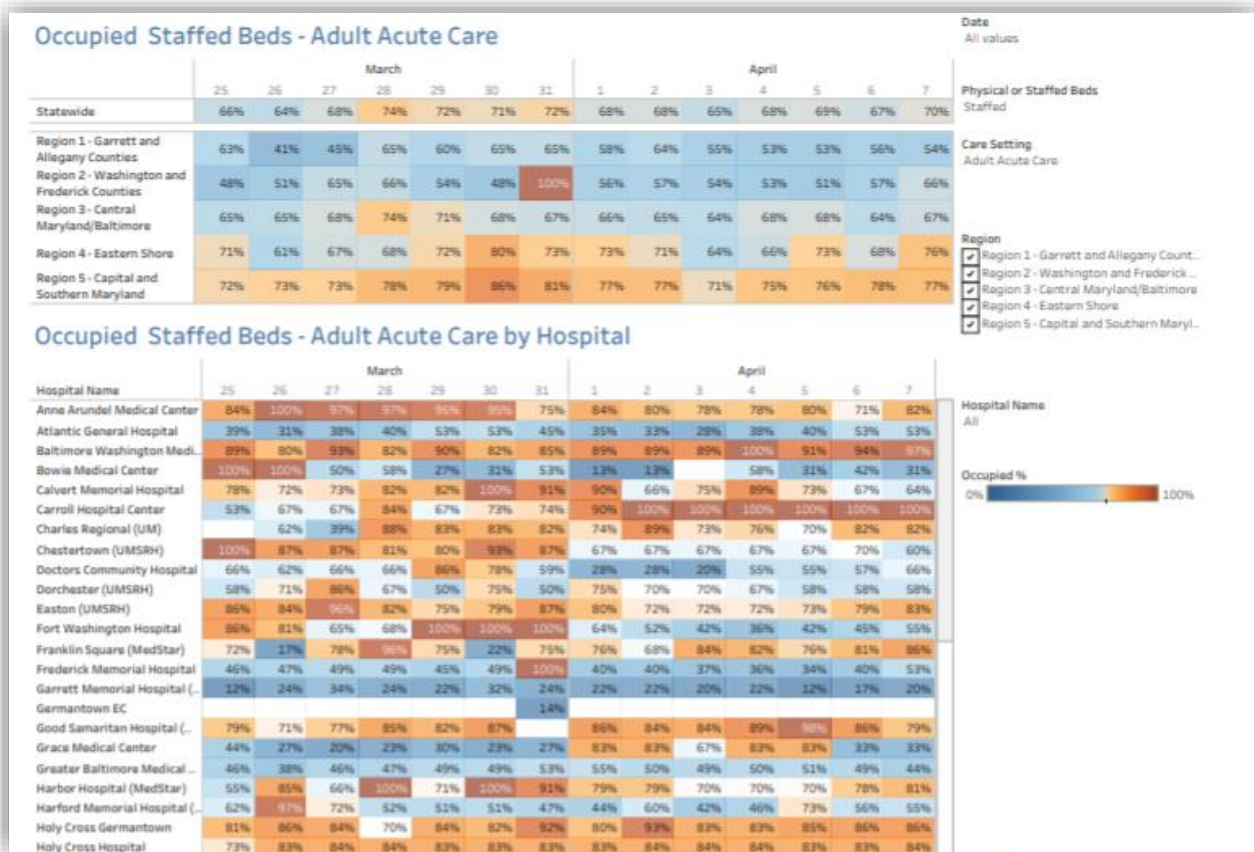
	Occupied Beds	Staffed Beds	Physical Beds	Peak Surge ICU Beds	Incremental ICU Beds with Tents	Total ICU Beds at Peak Surge
Statewide	1,215	1,484	1,794	3,382	251	3,633
Anne Arundel Medical Center	40	45	45	177	32	209
Atlantic General Hospital	7	15	15	25	0	25
Baltimore Convention Center Field Hos..						0
Baltimore Washington Medical Center	34	40	47	138	0	138
Bowie Medical Center	0	0	0			0
Calvert Memorial Hospital	8	8	8	24	0	24
Carroll Hospital Center	10	10	12	16	4	20
Charles Regional (UM)	11	15	15	26	4	30
Chestertown (UMSRH)	2	2	4	4	4	8
Doctors Community Hospital	30	30	39	110	11	121
Dorchester (UMSRH)	0	0	0	0	4	4
Easton (UMSRH)	7	8	10	86	4	90
Edward McCready Memorial Hospital	0	0	0	0	0	0
Fort Washington Hospital	7	7	7	4	27	31
Franklin Square (MedStar)	45	54	54	106	4	110
Frederick Memorial Hospital	23	37	49	49	4	53



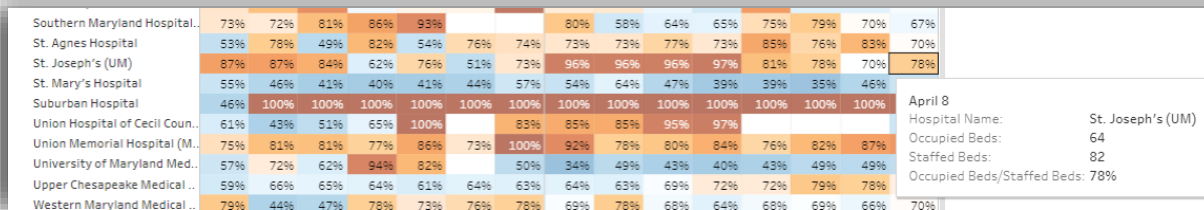
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3. Regional View

The regional view tab allows users to view hospital percent occupancy for regions in Maryland as well as for specific hospitals. This view is intended to support identification of Maryland regional patient to bed capacity. This tab also allows users to trend a specific hospital's percent occupancy over time. The cells are shaded by percent occupancy, in which 70% is the blue to red color scale inflection point (i.e., darker blue is below 70% occupancy, grey blue is near 70% occupancy, red is above 70% occupancy, bright red in near 100% occupancy).



Users can hover over a cell for a hospital and view the raw numbers of total beds and number of beds occupied.





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The filters on the right allow users to toggle between staffed or physical occupancy and the bed type. Care Setting choices include: Adult Acute Care, Adult ICU, Pediatric Acute Care, and, Pediatric ICU.

MIEMSS regions are defined as the following:

Region 1- Garrett and Allegany counties

Region 2- Washington and Frederick counties

Region 3- Baltimore City, Anne Arundel, Baltimore, Carroll, Harford, and Howard counties

Region 4- Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester counties

Region 5- Calvert, Charles, Montgomery, Prince George's, and St. Mary's counties

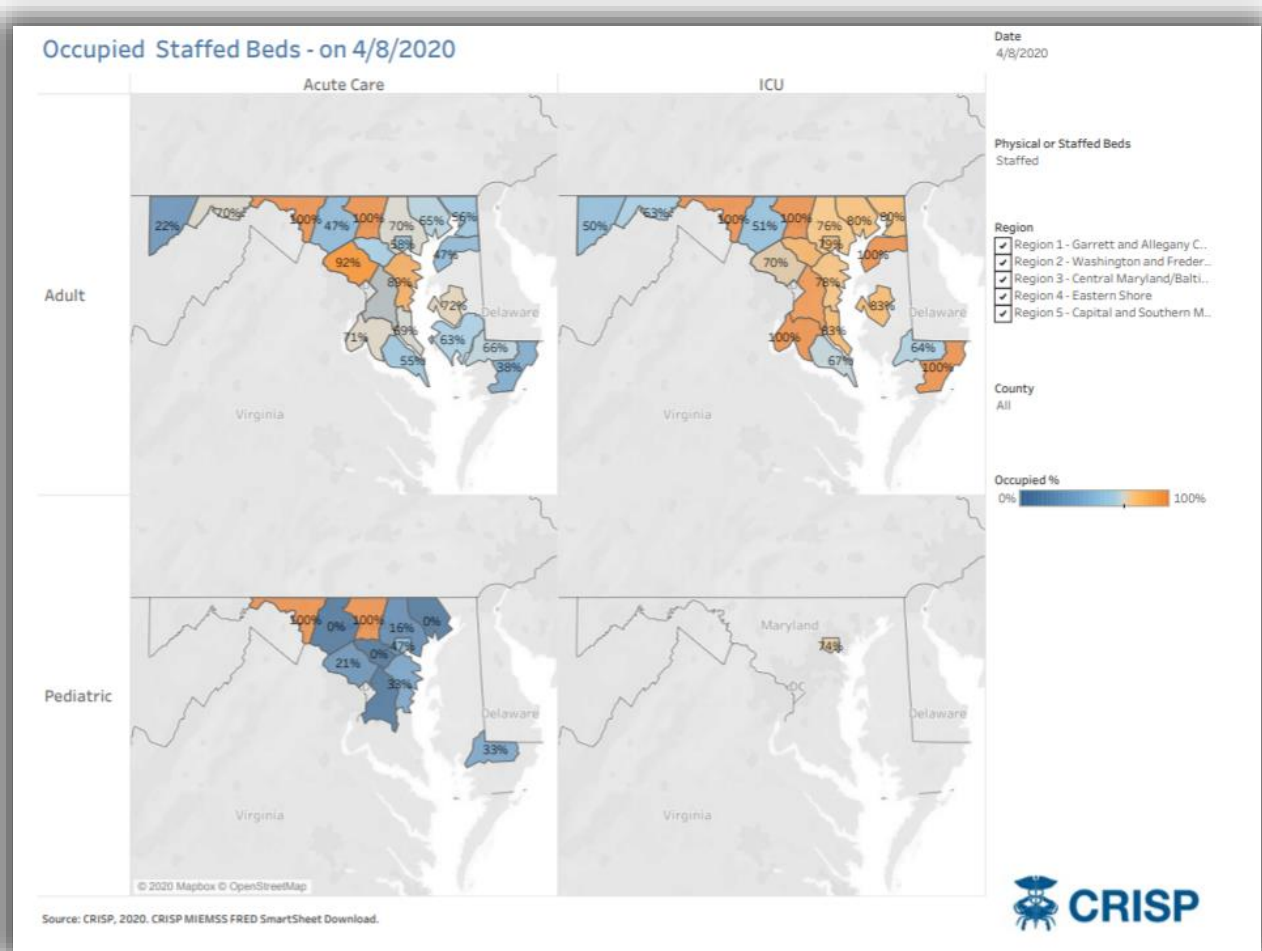


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4. Map View

The Map View tab displays percent occupancy of counties in the State based on hospitals located by county. This allows users to quickly view bed capacity by geographic areas. Filters on the right allow users to view occupancy by staffed and physical beds. The date selector allows users to look at the percentages by day. Coloring is similar to the 'Regional View-3' tab in which 70% is the blue to red color scale inflection point.

Please note, not all hospitals report pediatric acute care or ICU beds.





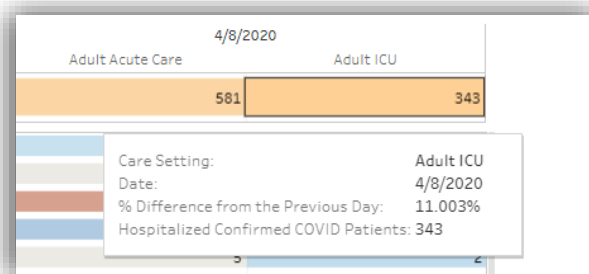
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5a. COVID-19 Beds

This tab displays the number of beds occupied by COVID-19 patients for adult acute care and ICU for the past 2 days. We shade the right two columns according to the percent increase from the day prior. The top row displays the Statewide number of hospitalized COVID-19 patients in acute care and ICU and the shading indicates the change from the day prior. This view is intended to highlight daily surge by hospital.

	5/12/2020		5/13/2020	
	Adult Acute Care	Adult ICU	Adult Acute Care	Adult ICU
Statewide	978	572	969	569
Anne Arundel Medical Center	52	32	53	30
Atlantic General Hospital	5	3	5	4
Baltimore Convention Center Field Hospital	15		14	
Baltimore Washington Medical Center	41	14	33	19
Bowie Medical Center	0	0	0	0
Calvert Memorial Hospital	4	0	6	0
Carroll Hospital Center	12	4	10	5
Charles Regional (UM)	10	6	11	6
Chestertown (UMSRH)	2	2	1	2
Doctors Community Hospital	27	18	29	18
Dorchester (UMSRH)	1	0	0	0
Easton (UMSRH)	6	3	8	3
Edward McCready Memorial Hospital	0	0	0	0
Fort Washington Hospital	8	4	6	5
Franklin Square (MedStar)	29	18	32	16
Frederick Memorial Hospital	20	10	15	11
Garrett Memorial Hospital (WVU)	0	0	0	0
Germantown EC	0	0	0	0
Good Samaritan Hospital (MedStar)	13	10	9	12
Grace Medical Center	0	0	0	0

Hovering over a cell displays the percent change

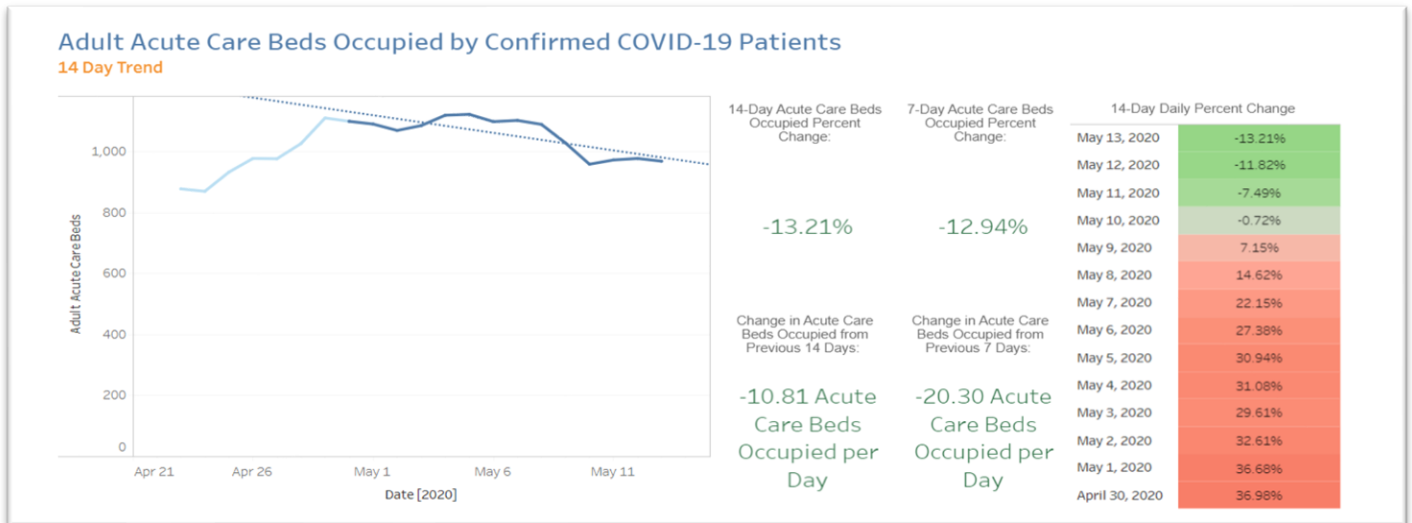
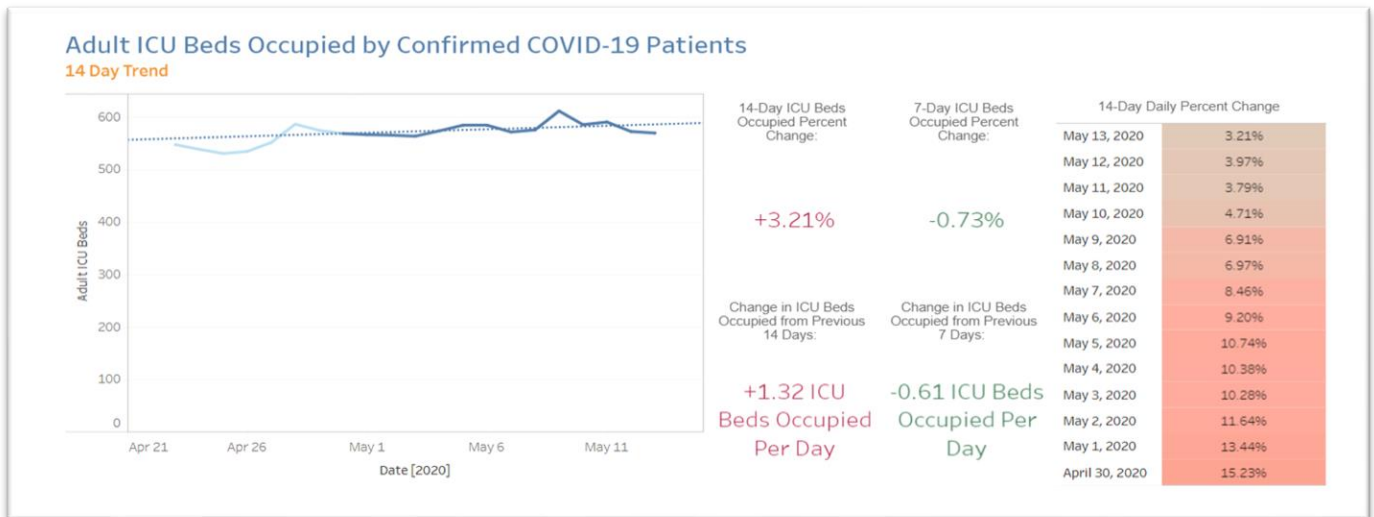




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5b. COVID-19 Trends

The COVID-19 Trend tab shows Adult ICU and acute trends for 7 days and 14 days. The solid line in the line graph is bolded for data on the last 14 days, and the dotted line represents the overall trend in the last 14 days. The percent change and average change are displayed next to the line graph for 7 day and 14 day trends. The 14 day percent change by day is shown in the column on the right. The cells and numbers in red represent a positive number and in green represent a negative number.

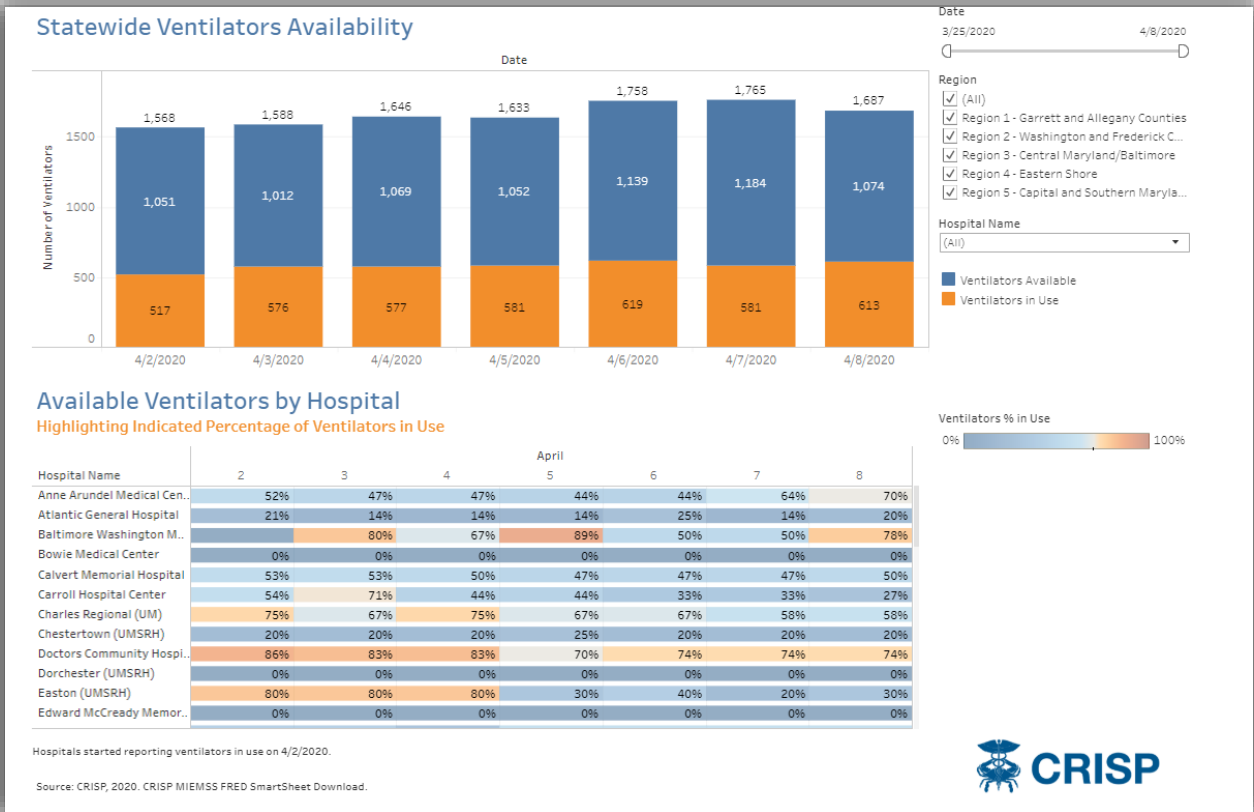




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5. Ventilator Availability

The ventilator availability tab shows the total number of ventilators available statewide and the number of ventilators currently in use. The filters on the right allow users to view the number of ventilators available in a particular region or for a specific hospital based on the filtering. The bottom table shows the percentage of ventilators in use by hospital. Users can hover over a cell to see the count of ventilators in use and ventilators available.

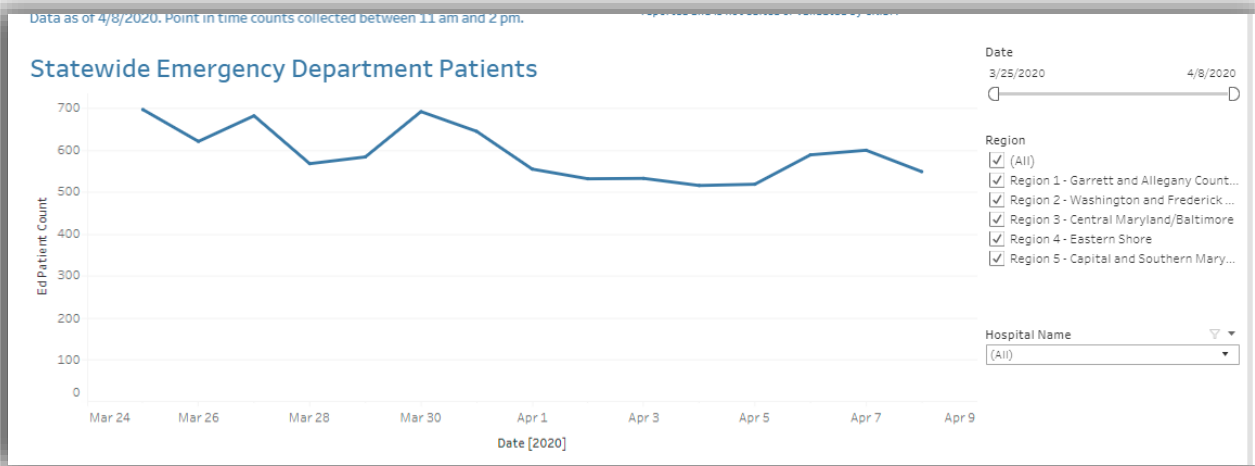




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6. ED

The Emergency Department (ED) tab displays point in time counts for the number of patients in the emergency department across the state. The bottom table displays the percent occupancy of emergency departments by hospital. Hovering over a cell will display the count of patients in the ED and total ED capacity. We shade cells according to the percent occupancy.




Emergency Department Patients by Hospital

Highlighting Indicates % Change From Previous Day

Hospital Na...	March							April							
	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8
Anne Arund...	21	17	25	15	18	20	17	24	20	19	20	24	23	22	23
Atlantic Ge...	10	0	5	7	8	8	16	4	1	5	2	1	2	2	3
Baltimore ...	22	37	25	30	34	40	36	16	16	16	35	34	14	25	10
Bowie Medi...	4	13	6	7	6	4	8	2	6	2	7	5	5	3	2
Calvert Me...	14	8	14	3	6	13	13	15	12	10	10	12	7	7	9
Carroll Hos...	17	12	13	9	14	21	8	8	12	6	11	7	8	13	13
Charles Reg...	17	23	21	19	9	24	23	13	14	19	10	8	23	13	11
Chestertow...	7	6	4	2	1	4	2	1	1	1	1	1	4	2	1
Doctors Co...	18	21	15	10	17	27	13	17	20	12	12	13	20	16	17
Dorchester ...	1	5	4	4	2	6	5	2	5	5	0	2	5	5	1
Easton (UM...	11	8	10	9	11	10	4	3	5	5	5	5	13	4	6
Edward Mc...	0	2	0	1	1	2	1	1	1	3	0	0	0	0	0
Frederick M...	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

% Difference from previous day: -100.0% to 700.0%

Source: CRISP, 2020. CRISP MIEMSS FRED SmartSheet Download.





7. MIEMSS FRED Survey

This tab enables users to download complete survey data as self-reported by hospitals to MIEMSS FRED. The download includes additional variables and values not included in the visualizations.

Measure	Definition
Facility Name	Hospital name
Region	Region 1- Garrett & Allegany Counties Region 2- Washington and Frederick- Western Region 3- Baltimore City, Anne Arundel, Baltimore, Carroll, Harford, Howard counties Region 4- Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, Worcester Region 5- Calvert, Charles, Montgomery, Prince George's, St. Mary's Counties
Number of COVID-19 Patients in ICU	Number of confirmed COVID-19 patients in ICU beds. These patients are not in addition to those included in the occupied bed count.
Number of COVID-19 Patients in Acute Care	Number of confirmed COVID-19 patients in acute care beds. These patients are not in addition to those included in the occupied bed count.
Number of Ventilators Available	Total number of ventilators available including all patient units, central stores, and emergency stocks that are readily available. Note: the number of ventilators available and number of ventilators in use should equal the total equipment count of ventilators.
Number of ventilators in use	Total number of ventilators in use.
Number of physical beds	Beds that are physically set up. These beds may or may not be staffed, may or may not be occupied, and may or may not have supplies and resources. This includes any traditional and non-traditional beds.
Number of staffed beds	Beds that are physically available for which staff is on hand to attend to the patient who occupies the bed and you would be able to admit a patient into immediately. Staffed beds include those that are occupied and those that are vacant. This includes any traditional and non-traditional beds.
Number of occupied beds	Beds that are physically available, staffed, and occupied by a patient. This is also known as the "Census". This includes any traditional and non-traditional beds.
Total Number of Patients in the ED	Total number of patients physically in the Emergency Department as of the time of reporting. This number includes those in hallway spaces, waiting room, and any other patient care spaces under the auspice of the Emergency Department.
Expanded into non-traditional spaces	Indicator if the hospital has expanded into non-traditional spaces for clinical care, eg. Tents, Conference Rooms.



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If you have expanded, how many beds have you added?	Number of additional beds added above the number of licensed beds.
Indicator of Clinical Staff Absenteeism	A rating score of 1-4 for all clinical staff absenteeism based on the following criteria: 1) Routine/typical proportion of absenteeism; 2) Absenteeism increased 25-50%; 3) Absenteeism increased 50-100%; 4) Absenteeism more than double typical.
ECMO Adult	Total number of Adult extracorporeal membrane oxygenation (ECMO) machines.
ECMO Peds/Neonate	Total number of pediatric/neonate extracorporeal membrane oxygenation (ECMO) machines.